

Enhanced Vapor Recovery Amendments Workshop

September 9, 2002

Air Resources Board
California Environmental
Protection Agency



Agenda

- Introductions
- Discussion of Comments Received since June 18th Workshop
- EVR System Certification Status
- Proposed EVR Amendments
- EVR Technology Review
- Cost-Effective Analysis Update
- Schedule

EVR Comments Received between June 18th and July 31st

- See App. 1 of EVR Tech Review Report
- EVR Certification
- EVR Implementation
- EVR Emission Reductions
- EVR Cost Analysis

Phase I Non-System-Specific Components

Comment: Make System-Specific Phase I Components Non-System-Specific

Response: No

Why: 1) Need to define Phase I system
2) Components that may seem interchangeable have different requirements

Example: Different torque settings for Phase I adaptors

Phase I Non-System-Specific Components Testing

Comment: Allow less than 180 day operational test for non-system-specific components to increase equipment availability

Response: No

Why: 1) Intent of non-system-specific is to allow use of components on multiple systems without full testing on EACH system

2) All components must successfully pass at least one operational test of at least 180 days

EVR Phase II for Unihose and “Six-pack” Dispensers

Comment: Can any EVR Phase II system be used on both unihose and six-pack dispensers?

Response: Yes

Why: The full EVR certification testing will be conducted using either unihose or six-pack dispensers. Field compatibility testing will be done using the alternate dispenser to allow the EVR Phase II system to be certified on both types of dispenser.

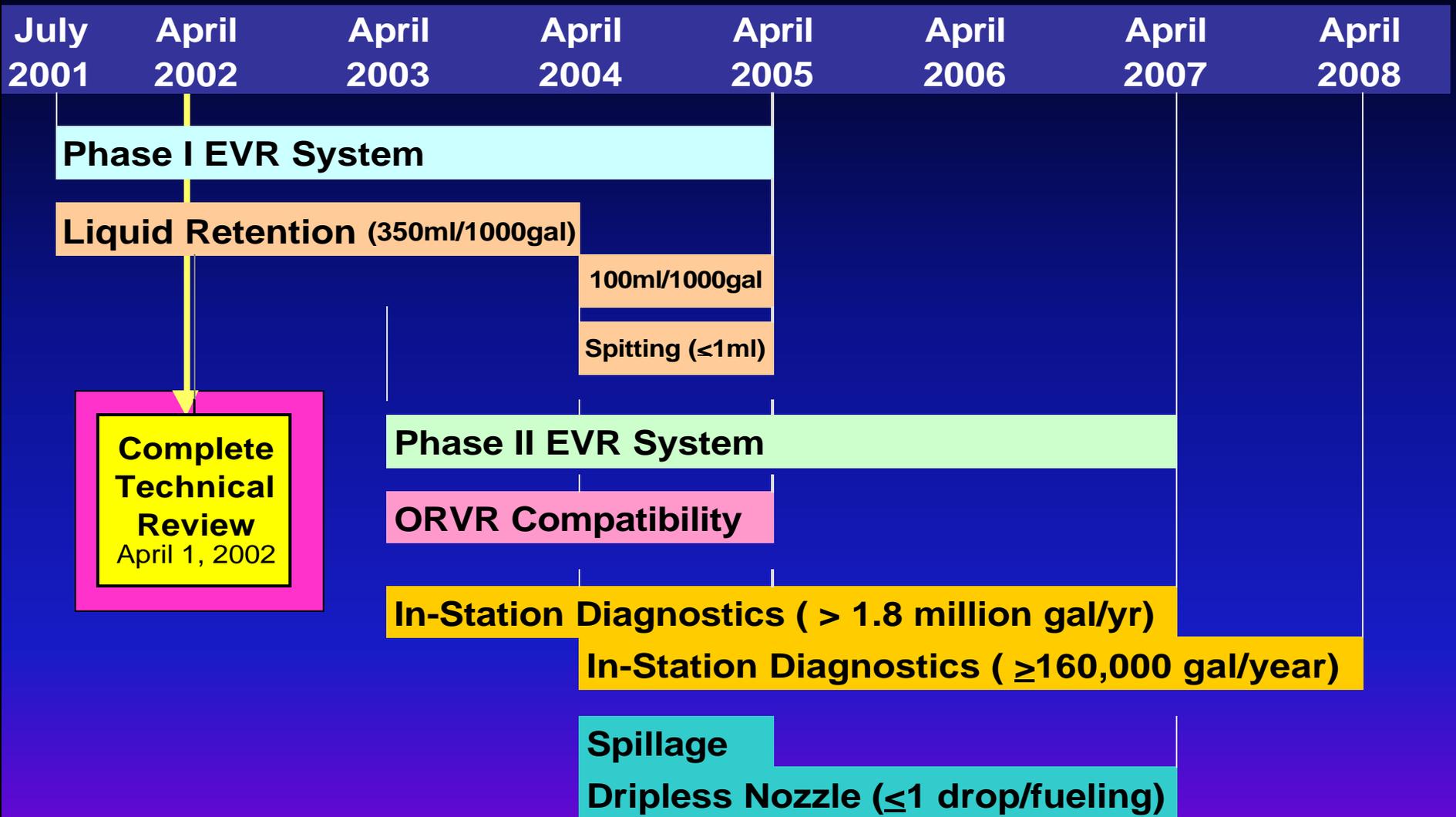
EVR Phase II Systems with Conditional ISD Certification

Comment: ARB proposes to allow limited term certification of systems with failures identified by ISD. The proposed limited term of 4 years for these certifications should be removed.

Response: Yes, we will remove.

Why: EVR certifications are already reviewed every four years. If deficiencies are identified, system cert will not be renewed.

The Enhanced Vapor Recovery Timeline



Use of EVR Nozzles on Pre-EVR Phase II Systems

Comment: Will EVR nozzles be compatible with my existing dispensers?

Response: Nozzles are expected to be compatible. However, if replacement nozzles are not compatible with the existing system, then a nozzle that was certified with the original system may continue to be used.

Adding ORVR Compatibility to Pre-EVR Phase II Systems

Comment: Can I add ORVR compatibility to my existing Phase II system so I can use until 2007?

Response: Yes, if your system has demonstrated ORVR compatibility through ARB certification. Pre-EVR Phase II systems can seek Section 19 certification for ORVR compatibility until April 2005. Phase II systems obtaining Section 19 certification for ORVR compatibility may remain in use until April 2007.

Upgrade of Pre-EVR Phase II Systems

Comment: Will upgrading pre-EVR Phase II systems to be ORVR Compatible trigger EVR via major modification?

Response: Not in most cases. Phase II major modifications are defined in D-200 as occurring when dispensers are replaced or 50% of buried vapor piping is added, replaced or removed.

EVR for Districts in Attainment Areas?

Comment: Districts in ozone attainment areas have vapor recovery to reduce benzene exposure. If EVR goals are ROG emission reductions, is EVR necessary for districts that meet the state ozone standard?

Response: Will propose EVR exemption for existing installed systems in districts in ozone attainment, except for ORVR compatibility. New installations and facilities with major modifications must meet EVR standards.

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EVR Certified System Update

- One certified EVR Phase I system
- No certified EVR Phase II systems with ISD
- No certified EVR Phase II systems without ISD

EVR Phase I System Status

- 19 applications received
- 10 tests terminated
- 3 systems under test
- 3 systems waiting to start testing
- 2 applications withdrawn
- 1 system certified*

* second system by end of Sept. 2002

EVR Phase II System Status

- 5 system applications
- 0 test sites sealed
- 0 systems currently on test

Pre-EVR ORVR-Compatible Phase II System Status

- 3 system applications
- 1 test sites sealed
- 1 system currently on test

- 3 systems certified prior to EVR program (2 Healy and SaberVac)

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Proposed EVR Amendments

- Rigid piping definition
- “Dripless” nozzle standard
- Other CP-201 revisions
- Test procedure changes
- ISD-based maintenance during certification testing

Rigid Piping

- Already required in CP-201
- Proposed definition: any piping material with a bend radius that exceeds six feet as determined by TP-201.2G.
- Similar to proposed UL standard for marina fueling systems

"Dripless" nozzle standard

- Currently "1 drop per refueling"
- Only EVR standard determined not to be feasible in tech review
- 3 drop average with 10 drop max proposed on June 18, 2002
- Current proposal: 3 drop average

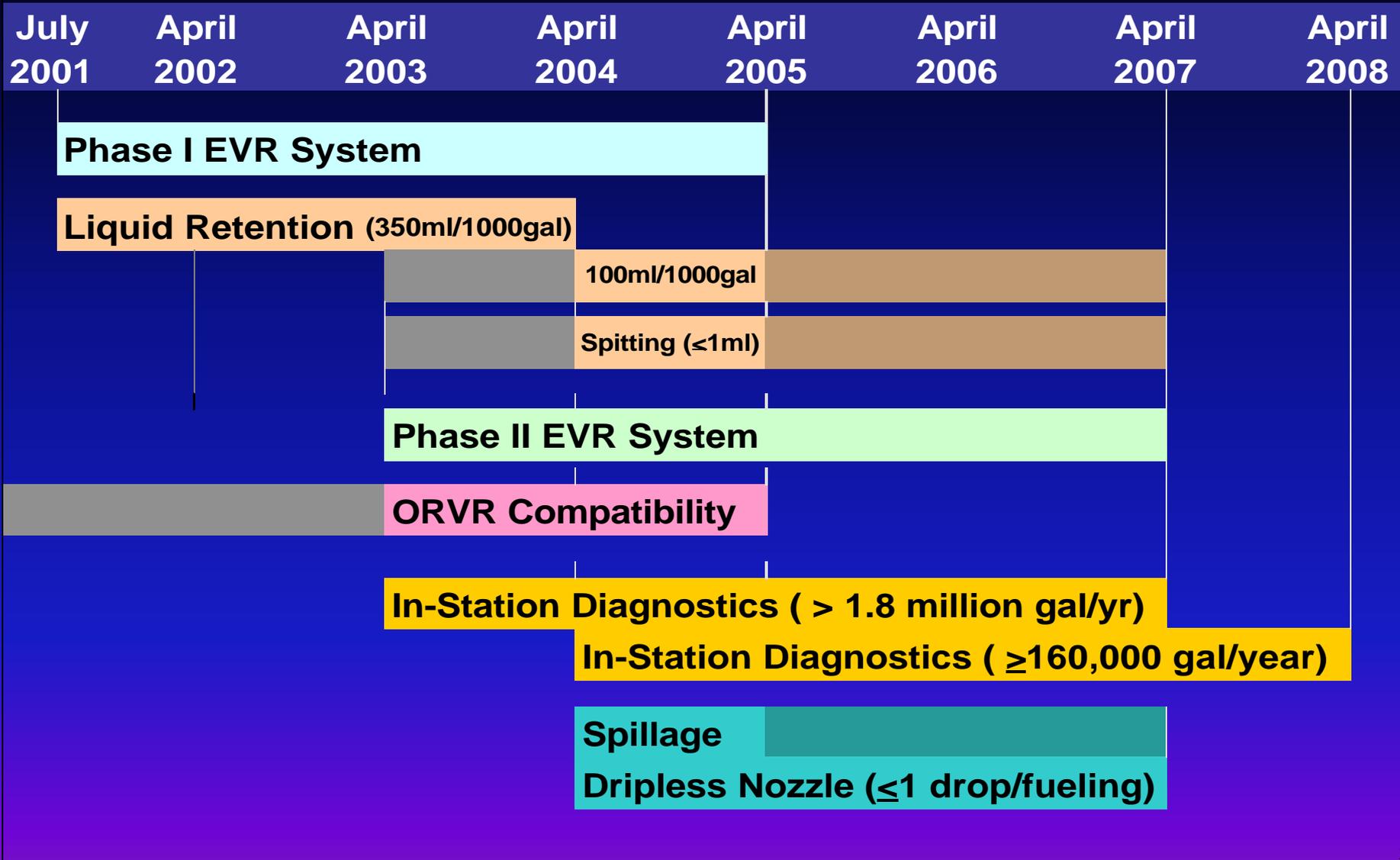
ISD Exemption Throughput

- Currently 160,000 gallons/yr based on average throughput of GDF 1 facilities
- Propose increase to 300,000 gallons/yr to include all facilities in GDF1 category

Nozzle Standard Effective Dates

- Change the effective dates from April 2001 to April 2003 for:
 - Liquid retention
 - Nozzle spitting
 - Spillage
- Aligns with “dripless” nozzle and Phase II

The Enhanced Vapor Recovery Timeline



Processor HC rate

Propose:

“maximum hydrocarbon feedrate from ~~to~~ the processor shall not exceed 5.7 lbs/1000 gallons”

Hand pump specifications

- Deleted hand pump references from CP-201
- Spill container requirements regulated by State Water Resources Control Board

Dispenser standard

- Dispenser vapor piping for balance systems already designated as a non-system-specific component
- Propose to remove “balance” to allow all dispenser vapor piping to be non-system-specific

Daily high pressure

- Clarify calculation in CP-201
- Intent:
 - Calculate the average pressure reading for each hour.
 - Identify the highest one-hour pressure average over a 24 hour period. This is the daily high pressure.
 - Compute rolling 30-day average of daily high pressures - may not exceed +1.5 inches water.

Certification process changes

- innovative system
- throughput for sixpack dispenser
- system-specific and non-system-specific
- certify ISD by system type
- ISD-based maintenance

Innovative system

- Intent was to allow flexibility for systems which emit much less than allowed by current standards
- In practice - viewed as way to avoid compliance with some EVR requirements
- Language to be modified to better reflect intent

Test site throughput for sixpack dispensers

- Unihose: Minimum throughput of 150,000 gal/month
- Six-pack: Minimum throughput of 150,000 gal/month for one grade of gasoline

System-Specific Components

- Pass all tests on system that is or becomes certified.
- Some components may then be certified on other systems after field compatibility, performance and efficiency tests.
- Example: Phase I adaptors (if identical performance and installation).

Non-System-Specific Components

- Operational test of at least 180 days on a certified system.
- May be certified on other certified systems after field compatibility and performance tests if meets all the system specifications.
- Example: Phase II Hose.

ISD Certification Process

- ISD system type certification will be proposed in the EVR amendments

ISD-based maintenance during certification testing

- ISD benefit is immediate identification of system failures
- We recognize that ISD will make it harder for Phase II systems to pass operational test
- Provide limited repair of failures identified by ISD during certification

ISD-Maintenance Criteria

- No failure for 90 days
- ISD-based maintenance included in maintenance manual
- Maximum 5% of allowable downtime for ISD-detected failures
- Manual field test failures are grounds for test termination

ISD Certification Options

- If ISD-detected failure occurs during certification:
Phase II system certification will require use of ISD system
- If no failures during certification:
Phase II system may be certified for use both with and without ISD

Revisions to Phase I Test Procedures

TP-201.1	Phase I efficiency
TP-201.1B	Adaptor static torque
TP-201.1C	Drop tube/drain valve leakrate
TP-201.1D	Drop tube overflow prevention device leakrate

Revisions to Phase II Test Procedures

TP-201.2B	Component leakrates
TP-201.2D	Post-fueling drips
TP-201.2F	Pressure-related fugitives

Proposed New Test Procedures

TP-201.1E	P/V valve leakrate
TP-201.7	Continuous pressure monitoring
TP-201.2G	Vapor piping bend radius
TP-201.2J	Balance components pressure drops
TP-201.2I	ISD certification

TP-201.1

Phase I Efficiency

- Current procedure assumes volume of vapor returned to cargo tank is same as volume of gallons dispensed
- Revised procedure measure vapor volume directly using meter to improve accuracy

Update of Other Phase I Test Procedures

- TP-201.1B: Adaptor static torque
 - TP-201.1C: Drop tube/drain valve leakrate
 - TP-201.1D: Drop tube overflow prevention device leakrate
-
- Improve equipment specifications
 - Clarify test procedure steps

TP-201.2B

Component leakrates

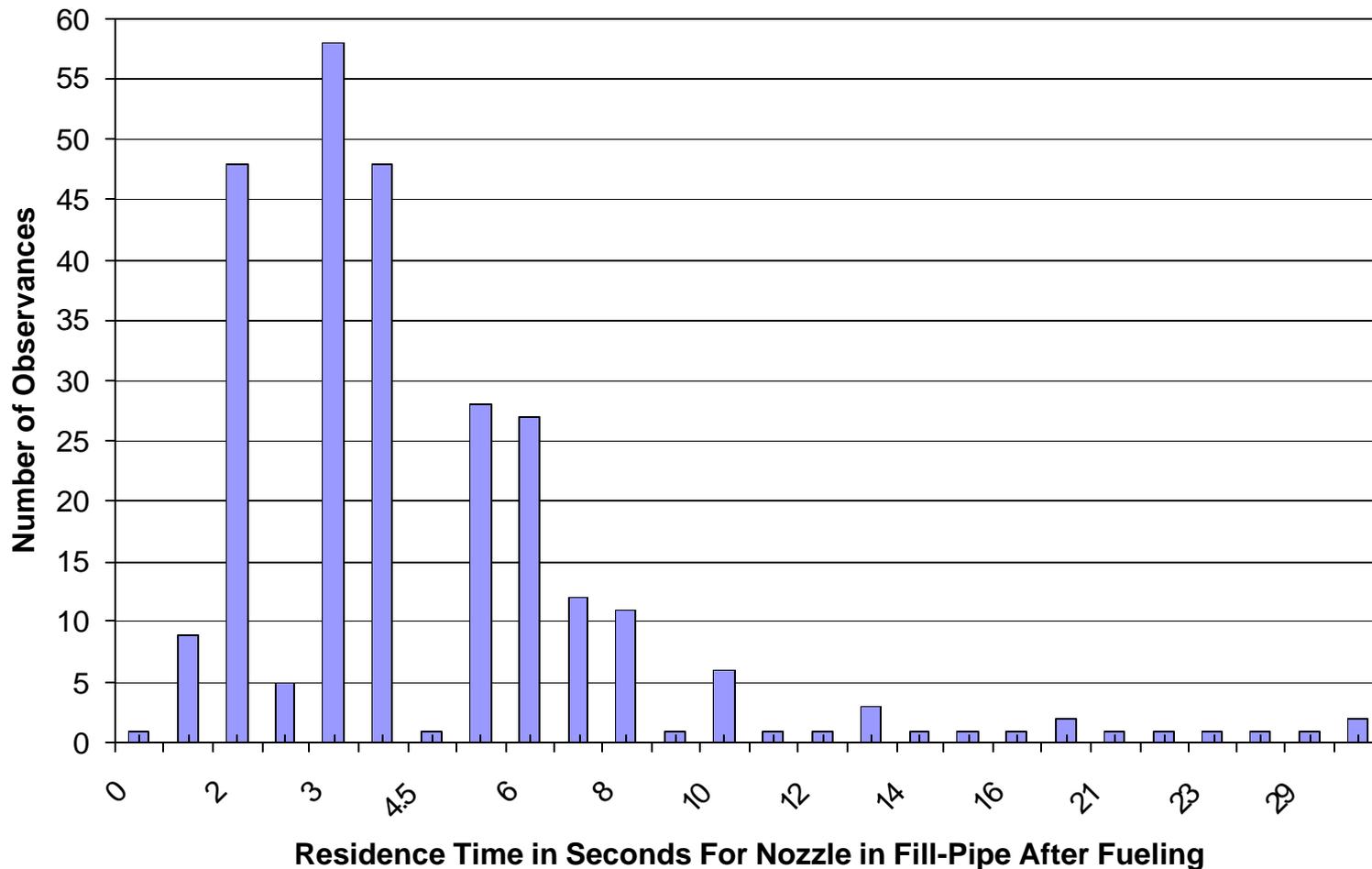
- Current procedure for P/V valve leak measurement uses rotameters
- Revised procedure allows option for mass flow controller to improve accuracy
- Removed TP-201.2B Appendix to create TP-201.1E

TP-201.2D

Dripless nozzle

- 15 drops/ml to be changed to 20 drops/ml to be consistent with spillage procedure
- Modifications suggested to improve method consistency and conduct fueling similar to average customer

Change time nozzle in vehicle from 10 to 5 sec



Nozzle Spout Horizontal, Not Upside Down for Drip Count

Adopted TP-201.2D



Proposed TP-201.2D



TP-201.2F

Pressure-related fugitives

- Current procedure has missing equations
- Change time for pressure decay from 20 minutes to 5 minutes

TP-201.2J: Balance component pressure drop

- New procedure
- Bench test to determine pressure drop for balance components

TP-201.7: Continuous pressure monitoring

- New procedure
- Describes equipment and procedure for pressure monitoring required for operational tests during certification

TP-201.2I: ISD Performance

- Describes certification tests to determine compliance with ISD standards

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Tech Review Direction from March 2000 Resolution

- Feasibility of standards with future effective or operative dates
- Comprehensive, thorough and rigorous
- Evaluate practical alternatives
- Hold workshops
- Complete tech review by April 1, 2002
- Submit final report to Board for consideration at a public meeting

EVR Amendments

- Propose changes to EVR regulation based on tech review findings
- Improve certification process
- Revised and new test procedures
- General clean-up and clarification

EVR Tech Review Report

- Will be finalized by early October
- Issued as attachment to ISOR for EVR Amendments
- Last chance to submit comments for EVR Tech Review Report - September 16, 2002

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EVR Cost Analysis

- Updates to cost analysis since tech review report
- Current cost-effectiveness

Summary of Cost Changes from June 18th Workshop

- Corrected annual equipment cost for cost-effectiveness calculation
- Reduced projected number of certified EVR systems
- Increased “worst case” ISD system cost
- Revised ISD emission reductions

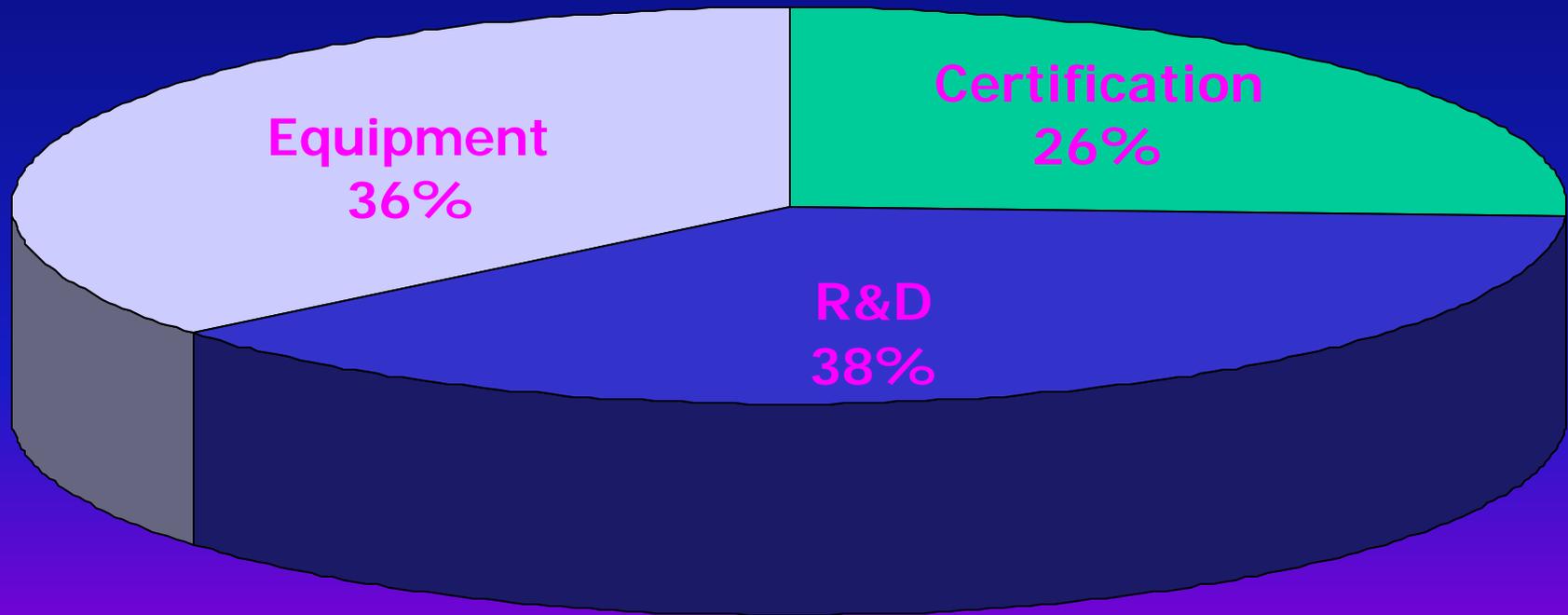
Annual field test costs for balance systems

- Existing balance system Executive Orders require testing every 5 years
- EVR systems will require annual testing
- Added costs associated with balance system increased testing
- Estimated \$800 (SCAQMD rule)

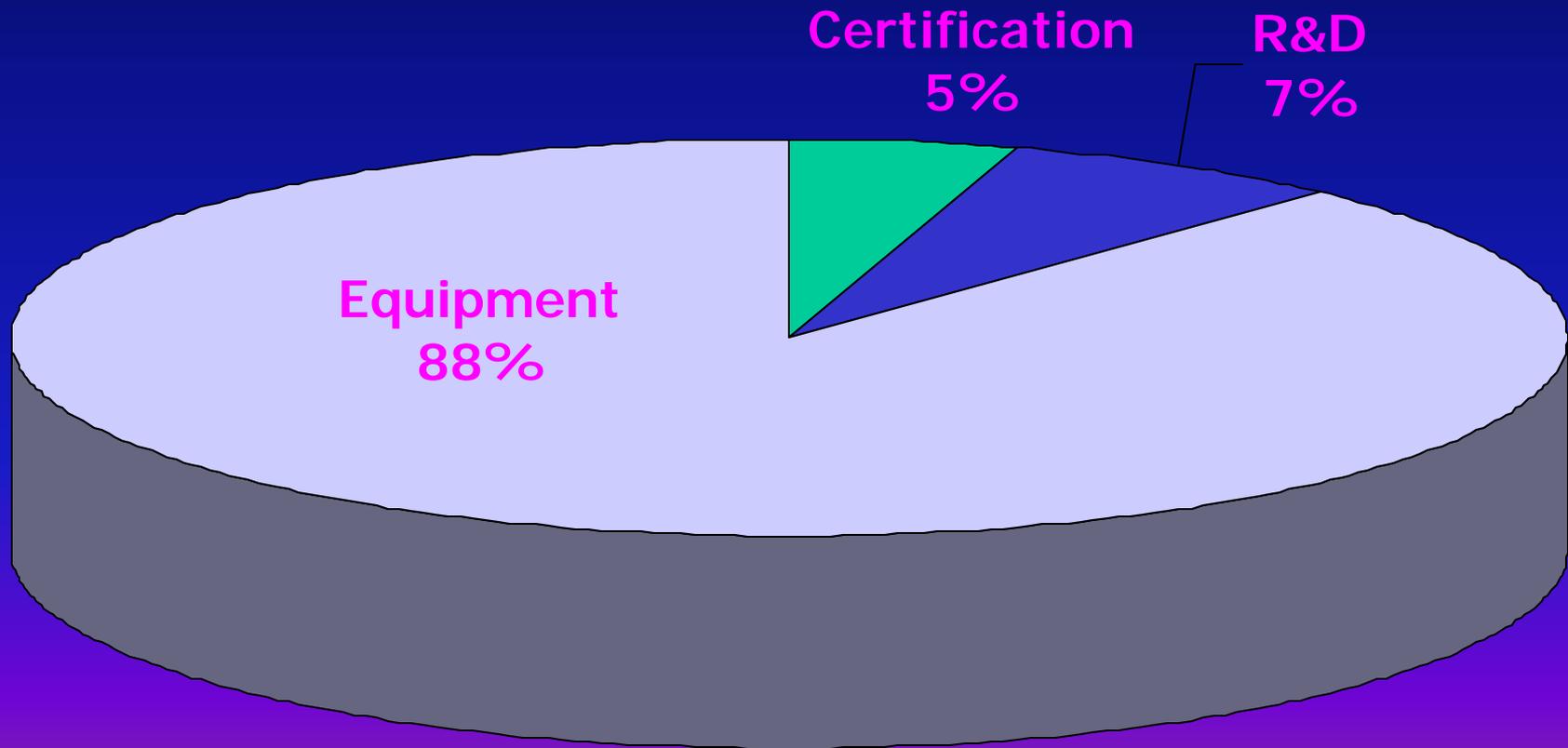
Other Cost Analysis Updates

- Adjusted ISD costs to 1999 dollars
- 1999 gasoline throughput
- Revised emission reductions
 - ISD: changed from 6.6 to 8.5
 - ORVR: changed from 6.3 to 4.5
- Included annual maintenance costs in EVR total cost

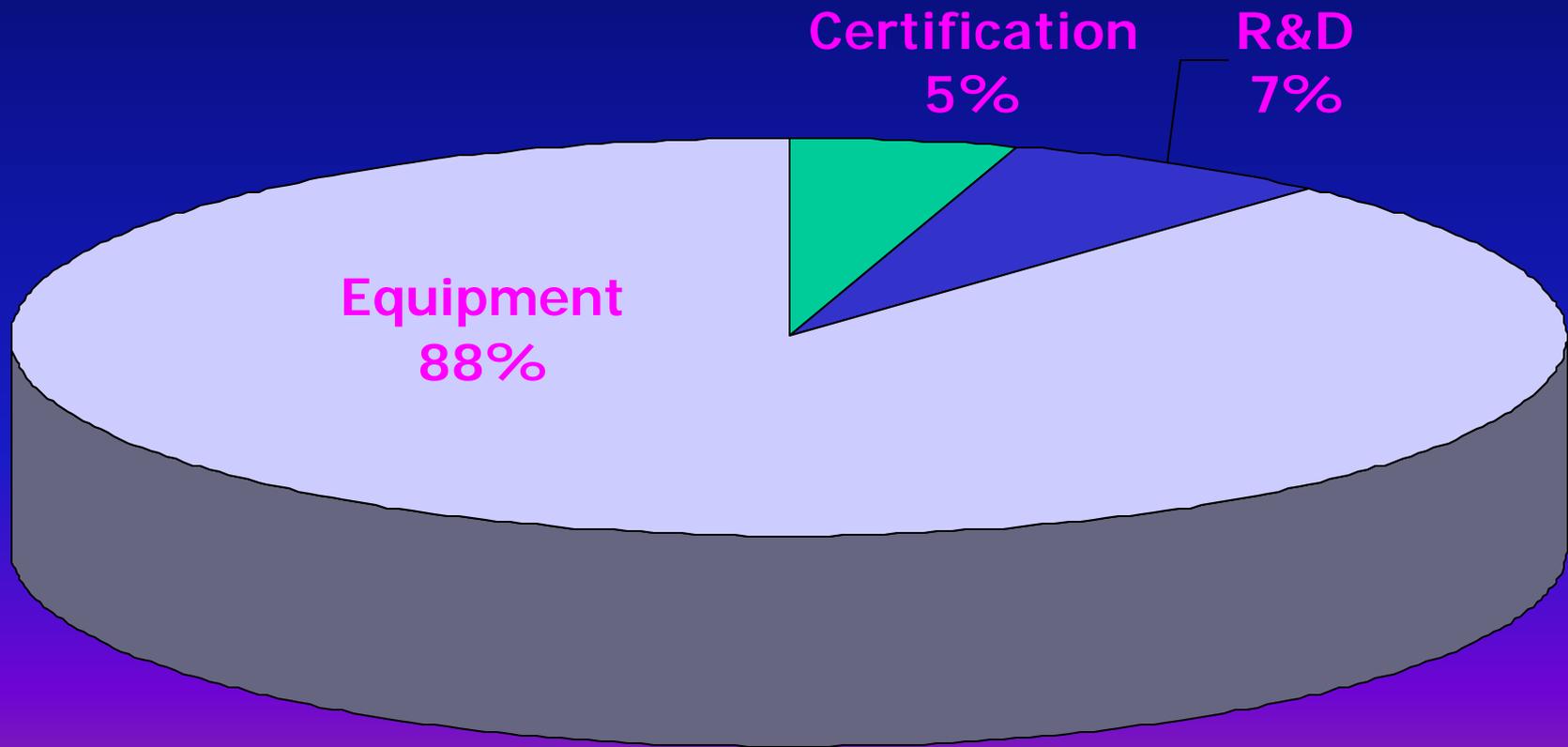
Feb 2000 EVR Costs 33 million annually



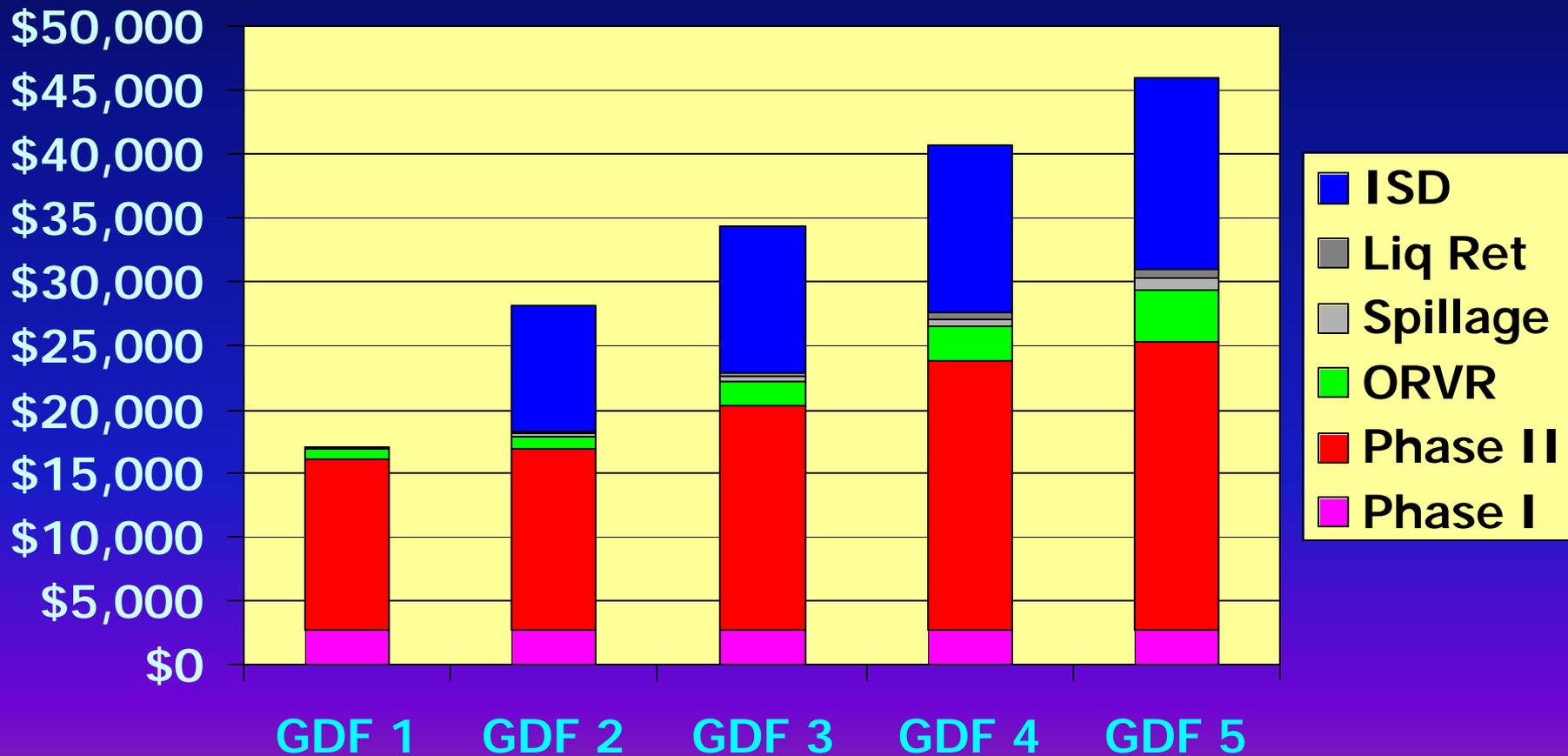
June 2002 EVR Costs 88 million annually



September 2002 EVR Costs 91 million annually



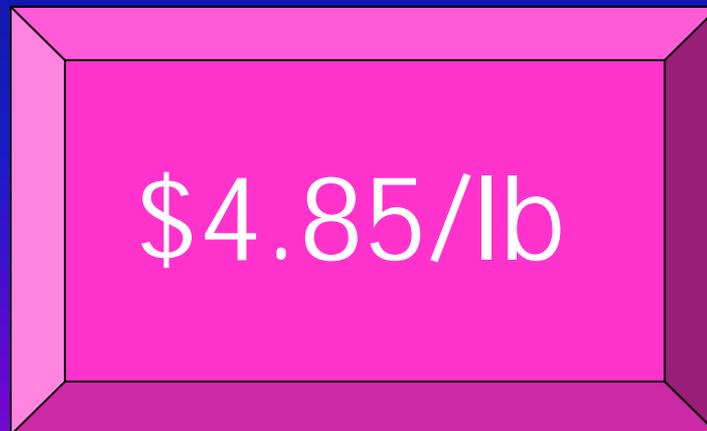
EVR Total Equipment and Installation Costs



Overall Cost-Effectiveness as of September 2002

$$\left(\frac{\$91,050,000/\text{yr}}{25.7 \text{ tons/day}} \right) \left(\frac{1 \text{ ton}}{2000 \text{ lb}} \right) \left(\frac{1 \text{ yr}}{365 \text{ days}} \right)$$

=



\$4.85/lb

EVR Cost Effectiveness as of September 2002

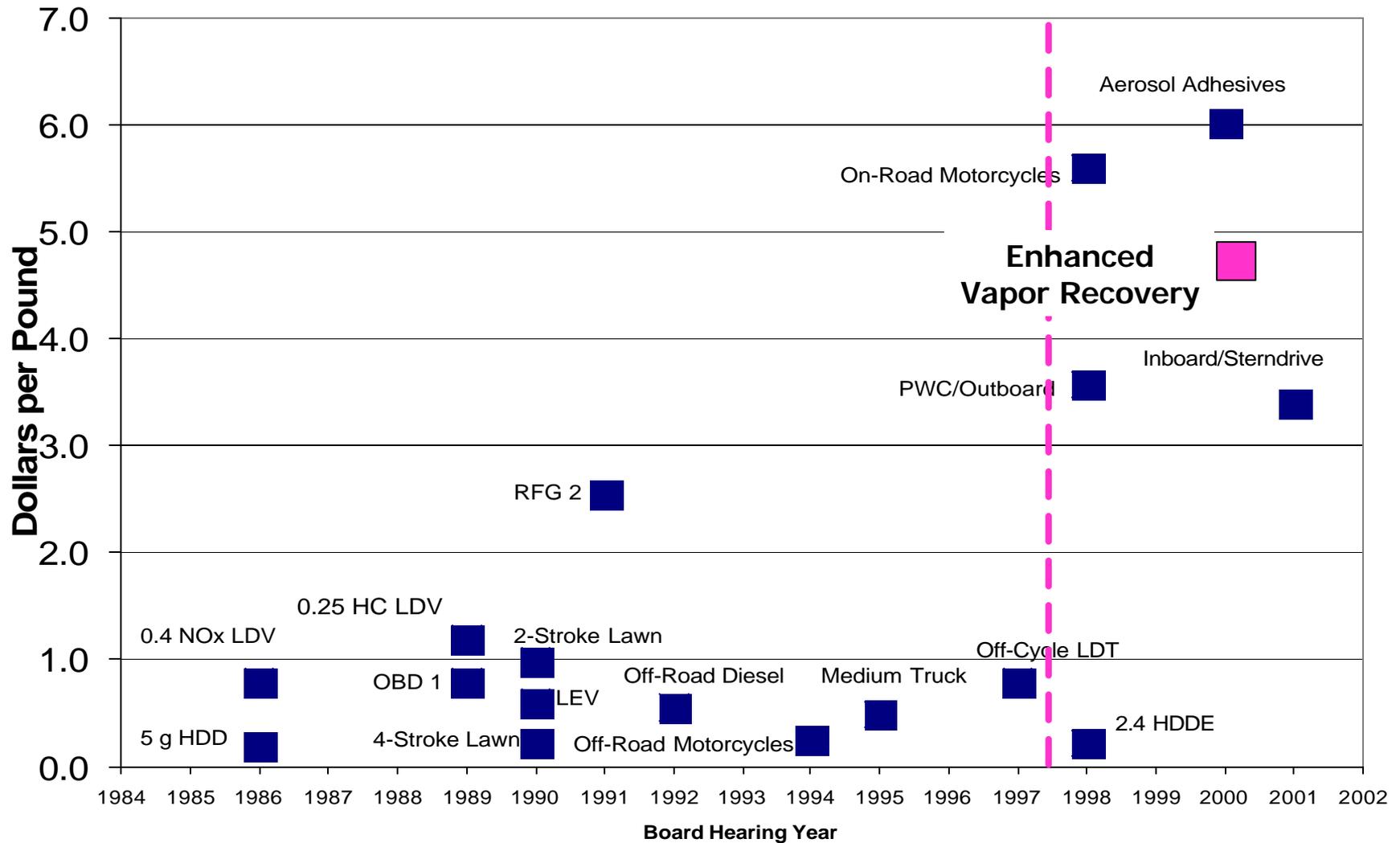
Group	GDF 1	GDF 2	GDF 3	GDF 4	GDF 5
gal/mo	13,233	37,500	75,000	150,000	300,000
%	4.7	14.1	45.7	31.3	4.2
EVR em red (tpd)	0.15	1.36	8.82	12.10	3.27
C.E.* (\$/lb)	\$28.90 \$17.60	\$10.10	\$6.27	\$3.68	\$2.10

*Overall Cost-Effectiveness = \$4.85/lb

EVR Cost Effectiveness Development (\$/lb)

	GDF 1	GDF 2	GDF 3	GDF 4	GDF 5
ISOR Feb 2000	\$12.49	\$4.42	\$2.41	\$1.24	\$0.63
Tech Rev Apr 2002	\$15.25 \$10.11	\$5.46	\$3.04	\$1.61	\$0.81
Workshop Jun 2002	\$24.22 \$15.37	\$9.10	\$5.74	\$3.40	\$1.95
Workshop Sept 2002	\$28.90 \$17.60	\$10.10	\$6.27	\$3.68	\$2.10

Cost Effectiveness of Major Regulations Mobile Sources and Fuel



Schedule for EVR Regulation Amendments

- Preliminary comments by
September 16, 2002
- Notice and ISOR release on
October 25, 2002
(start of 45-day comment period)
- Board meeting on
December 12-13, 2002

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