



## Viewpoint:

More time, better data needed

# CARB Needs to Modify Plan for Improving Vapor Recovery Program

by Wolf H. Koch, PhD

In the January 1999 magazine, I reviewed the status of the California Air Resources Board's (CARB's) proposed changes in vapor recovery rules and reported on the proceedings at a November 1998 CARB workshop.

## Four issues of concern

In that article, I made recommendations to CARB on the need to: (1) reconsider the legal implications of proposed changes in vapor recovery equipment warranty and certification requirements; (2) establish better fugitive emissions estimates for both balance and assist systems, including the effects of interactions with onboard refueling vapor recovery (ORVR) systems; (3) establish more realistic, attainable objectives as to the percentage of emissions that can be recovered; and (4) consider the impact, outside of California, of proposed changes to rules on vapor recovery equipment certification or decertification actions. (See

"CARB Proposes Major Changes to Its Certification Process," January 1999, page 90.)

The first issue above was addressed during a recent ARB meeting. The second and third issues may be addressed in the next few months, as CARB staff develops data on fugitive emissions for balance systems. The fourth issue can be resolved if CARB chooses to amend current certification procedure CP-201 (Vapor Recovery Systems of Dispensing Facilities) to change the current decertification requirement.

Since last November, CARB staff has held three workshops (March 4, May 8 and July 8) on the subject of Enhanced Vapor Recovery (EVR). Also, the California Air Pollution Control Officers Association (CAPCOA) has convened two meetings (April 23-24 and July

14-15); and the Air Resources Board met on June 28 to adopt new procedures and change warranty and certification requirements.

Data on fugitive emissions from assist system installations, which I discussed in January, has been officially released, although in draft report form. Also, data on assist system performance, collected during January through April of this year, was distributed *unofficially* during the July CAPCOA meeting. In addition, legal action has been taken by one Air Pollution Control District (APCD) against an oil company and some equipment suppliers, and the South Coast APCD has settled litigation forcing more stringent control measures.

## Litigation

The recent settlement of a lawsuit by an environmental group is forcing CARB to consider more stringent control measures for VOC reduction. For the South Coast APCD, the settlement requires a 5 to 10 tons per day reduction by 2010. While CARB has already compiled a list of potential improvements that would result in reductions of VOC emissions,

many on the list are directly related to improvements in Stage I and II processes and increased enforcement of testing requirements.

The Santa Barbara APCD has recently initiated civil action against 14 Mobil Oil Company facilities found to be out of compliance. California statutes prevent civil or criminal actions against stations that have installed certified equipment that is installed and maintained in accordance with manufacturer's recommendations. However, the APCD claims that repeated failures indicate that equipment in use is improperly maintained and, therefore, has lost its certification.

The APCD further claims that the problem is lack of sufficient guidance from manufacturers. Neither the US EPA nor CARB appears willing to assume leadership on this enforcement issue. It is anticipated that both sides will appeal the matter until it reaches the California Supreme Court.

## June meeting

On June 28, the Board approved changes to four current procedures:

**CP-201:** Certification Procedures For Vapor Recovery Systems of Dispensing Facilities

**TP-201.4:** Determination of Dynamic Back Pressure Performance of Vapor Recovery Systems of Dispensing Facilities

**TP-201.5:** Determination (by Volume Meter) of Air to Liquid Volume Ratio of Vapor Recovery Systems of Dispensing Facilities

**TP-201.6:** Determination of Liquid Removal of Phase II Vapor Recovery Systems of Dispensing Facilities

The changes to the above procedures are minor and represent an incremental change. They correct mistakes or incorporate new procedures or equipment, with major modifications to be acted on at the December 9 Board meeting.

CARB staff proposals for changes in warranty requirements have been modified several times. The Board has made no significant changes to the current requirement of at least a one-year warranty.

The Board also passed new rules for Applications for Certification. These rules require an applicant to provide a complete list of all components, evidence of notification to the owners of such components and evidence that an application for certification is pending. While CARB's intent is primarily to ensure the compatibility of assist system components, it was pointed out that all balance system components appear on one executive order that covers compatibility. Several manufacturers expressed

concern about having to notify their competitors about pending certification testing.

## Additional changes in the works

CARB will be proposing further new procedures and changes to the following test methods:

**Amend CP-201:** (See title cited on page 28)

**Amend TP-201.1:** Determination of Efficiency of Phase I Vapor Recovery Systems of Dispensing Facilities Without Assist Processors

**Amend TP-201.1A:** Determination of Efficiency of Phase I Vapor Recovery Systems of Dispensing Facilities With Assist Processors

**Amend TP-201.2:** Determination of Efficiency of Phase II Vapor Recovery Systems of Dispensing Facilities (vent sleeve, fugitives)

### ORVR Compatibility

#### Liquid Retention

The primary changes in the procedures and methods cited above will reflect a move from *collection efficiency* to *emissions factors*. Additional emissions points will be established and procedures for measuring emissions at those points will be developed.

## Emissions factors

The most significant change for equipment certifications will be a requirement for increasing the overall efficiency of vapor recovery systems. Currently, Stage I and Stage II systems must each achieve an efficiency of 95 percent during prescribed testing. Since testing either system separately does not cover all possible emissions sources during operation, CARB staff is now proposing an *overall* efficiency requirement of 95 percent. This will include: *transfer* emissions, *vent* emissions, *processor* emissions, *fugitive* emissions, *spillage* and *liquid retention*; the required maximum of total emissions will be less than 0.42 pounds per 1000 gallons dispensed.

While most of the above areas have test procedures associated with them, not all tests are quantitative. Procedures for fugitive emissions were proposed several years ago, but have not been used in actual efficiency testing. Finally, liquid retention represents a source for newly defined emissions of gasoline retained in a nozzle after fueling is completed.

Any hydrocarbons retained downstream of valves in either the vapor or liquid passage may vaporize after the nozzle is inactive for a period of time. This new proposal will have a major impact on systems with vapor valves in the dispenser rather than the nozzle since

hydrocarbon holdup in the hose will be considered.

## In-station diagnostics

The new EVR proposals will also include in-station diagnostics (ISD) provisions that will require periodic monitoring of system performance, data acquisition and retention and signaling of malfunctions.

Current plans include installing ISD equipment at CARB's El Monte testing facility and other sites. One objective of the testing will be to quantify potential interactions between Stage I and Stage II equipment and to define potential incompatibility of equipment currently in use. This work will include testing of sites equipped with balance systems.

ISD requirements will most likely include continuous monitoring of underground tank system pressure, ratio of vapors collected to liquid dispensed (V/L or A/L) and vent emissions. CARB has stated that fugitive emissions monitoring will not be required if storage tanks are maintained under vacuum. CARB has also discussed requirements for alarm systems that will automatically report failures to the individual APCDs. J. Morgester, chief of CARB's Compliance Division, has stated that the new mandates will require a station shutdown if the A/L ratio tests or vent processors fail.

## Timing is everything

CARB has reaffirmed the following schedule for the balance of this year and for implementation of EVR rules:

### 1999:

- Jul. 30** Draft rules available for distribution
- Aug. 13** Comments on draft rules back to CARB
- Aug. 31** Workshop to discuss revised methods
- Oct. 22** Staff report to Board (start of 45 day comment period)
- Early Nov.** Workshop to discuss revised methods
- Dec. 9** Board adopts new methods

### 2000:

- Oct.** New methods package sent to Office of Administrative Law (OAL) for review
- Dec.** New methods become legally effective 30 days after OAL approval

After the effective date, a four-year grandfathering period for existing vapor recovery systems starts. Existing type-approved systems will remain certified for six months. Thereafter, new installations must meet new requirements and existing stations must have replacement parts that are certified.

There was considerable discussion on the requirement of certified replacement parts for decertified systems. Officially, CARB staff indicated that an interpretation of the requirement would be forthcoming. Unofficially, CARB executives explained that this requirement should *not* be interpreted as a way to legislate current systems out of existence prior to expiration of the four-year grandfathering period.

The potential problem with the language in CP-201 is that it may be interpreted as requiring certification of replacement parts under the new (pending) methods. This, of course, is not possible, since current systems will need to be modified and then recertified. While CARB has indicated a willingness to consider the issues, a clear statement allowing continued use of currently used replacement parts—such as vapor pumps, circuit boards, hoses, fittings and nozzles—throughout the four-year period needs to be made to protect end-user investments.

Another open issue concerns CARB's available options for implementation dates and which new procedures to include in the revised methods. CARB can set a future effective date for the new requirements, thus pushing back the six-month decertification rule. As an alternative, CARB discussed amending CP-201 by extending the six-month rule. Finally, new methods could be phased in incrementally, with ORVR and certification changes first and ISD at some later date.

## Economic impact

Economic impact was not discussed at any of the meetings, although California's statute requires an economic study and report. In private discussions, CARB staff members indicated this is another item on their long list of requirements to be resolved prior to issuing their recommendations to the Board by October 22.

## Preventive maintenance

Minutes from the CAPCOA April meeting indicate that individual APCDs have been imposing requirements in addition to those required by individual system certification Executive Orders. Monterey Bay now requires facility operators to establish preventative maintenance (PM) plans as a condition for receiving a Permit to Operate. Quarterly A/L testing is mandated for all assist systems until a facility establishes an effective PM program. Monterey Bay also requires A/L testing following drive-offs to ascertain hidden damage that may result in excessive emissions.

The CAPCOA July meeting focused on additional PM discussions. The APCDs are insisting that dispenser manufacturers prepare (and keep current) detailed maintenance procedures that will include all interactions with past, current and future hanging hardware. At issue are allowable pressure drops across individual equipment items, which ultimately affect overall pressure drops across the vapor recovery system and recurring A/L and back pressure testing.

It was pointed out repeatedly to CAPCOA members that dispenser manufacturers can only address features of hanging hardware used in their certifications, and that they have no recourse with independently certified equipment. It was suggested that CARB assume responsibility to publish and maintain a listing of pressure drops across all certified equipment.

## Opinions on CARB options

From an industry perspective, what makes most sense to me is for CARB to select a future effective date, or to amend CP-201 and extend or eliminate the six-month rule. In addition, rushing ISD requirements for an October sub-

mission and December Board approval makes very little sense to me.

The marketplace, along with APCDs, will dictate rapid implementation of new requirements. With an estimated dispenser life of seven years, currently certified equipment will most likely not be sold after December's adoption of new requirements, regardless of the actual decertification dates. In addition, APCDs will be reluctant to issue permits for equipment known to be getting obsolete soon.

CARB staff has clearly stated that the agency is just beginning to assess the problem of fugitive emissions and will be instrumenting test sites soon. All work so far has considered only assist systems; data gathering from balance sites will begin shortly. Experimental work on assessing fugitive emissions from two assist sites has only now been made available (although the work was performed 10 months ago).

How can CARB staff consider finalizing procedures in October for a December approval when the procedures have not yet been developed and the necessary backup data has not been generated or made available for comment? Currently CARB and CAPCOA are

scheduled to meet on August 4 to discuss and plan the testing of balance systems. Any data developed as part of that program should be made available before the draft rules are developed, but the draft rules were scheduled for public release in late July.

In contrast, industry groups have been working with CARB on ORVR procedures for more than three years. Compatibility data was generated jointly during February-March 1996, reviewed by all participants and published on November 22, 1996.

## Likely future directions

Considering inputs from the various recent meetings and discussions with CARB staff and CAPCOA members, it is likely that the organizations will pursue the following course of action during the next few months:

- Both organizations will levy additional requirements for maintenance procedures and record-keeping on manufacturers. Currently, they are proposing that dispenser companies bear the burden of all PM requirements.
- While many options are being consid-

ered as part of upcoming EVR and ISD strategies, the preferred method for CAPCOA members is keeping USTs at negative pressures. Realistically, this can only be accomplished with vent processors.

■ CAPCOA is pushing very hard for CARB to start system performance and fugitive emission studies on balance systems. Several district engineers have repeatedly expressed their belief that emissions estimates for balance stations are understated and that periodic testing on those facilities should be required.

■ CAPCOA members have stated that they will continue to pursue their goal of having vapor recovery system performance at the certification level of 95 percent through vigorous enforcement of inspection and testing programs. They have expressed a need for assistance from equipment suppliers in developing simple test methods. To assist with a PM program, the Western States Petroleum Association (WSPA) has made a proposal to establish a comprehensive equipment failure database.

■ CAPCOA is recommending that the cur-

rent certification process be changed to provide a one-year *trial* certification for new equipment. At the end of the trial-period, the equipment would be evaluated for performance in the field and receive a regular certification or be decertified. The membership feels that a 90-day durability test period is insufficient to evaluate system performance adequately.

### Recommendations for CARB

During the last three years, CARB and industry have developed an effective, cooperative working relationship with positive results. To help preserve this relationship and use it toward finding acceptable solutions to the vapor recovery issues, I recommend that CARB consider the following:

■ Base new procedures on real data. Delay writing new rules until the data is available and has been evaluated. Ensure that balance system data is adequate and comparable in scope to assist system data.

■ Assess and report on the economic impact of the new rules, together with industry, to arrive at realistic cost-benefit data

for incremental system improvements.

■ Postpone the adoption of new procedures. October 22 is much too soon for an orderly development of new test procedures for which real data is not planned to be generated until August or September.

■ Consider changing the six-month decertification requirement in CP-201 to prevent systems outside California from being caught in a legal quagmire. Most jurisdictions outside California require CARB certification of equipment and have no provisions for a grandfathering period. ☹

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