

Editor's Note: In the Nov/Dec issue of *PE&T*, Joe Totten wrote an article on the status of Onboard Refueling Vapor Recovery today ("ORVR: Just *Where* Is It Taking Us?" page 25). We've promised that *PE&T* would keep readers updated on this very important subject. In this article, Wolf Koch gives his perspective on a public meeting of the California Air Resources Board (CARB) that he attended in November 1998.

Warranties would change to

CARB Proposes Major Changes to Its Certification Process



by Wolf H. Koch, PhD

On November 10, 1998, CARB held an Enhanced Vapor Recovery Workshop, which I attended. At the Workshop, CARB executives:

- proposed sweeping changes in CARB's equipment certification procedures.
- revised five-year-old estimates for potential fugitive emissions coming from the adverse interaction of assisted Stage II systems with the new vehicle onboard refueling vapor recovery (ORVR) systems. (These ORVR systems are to be found in cars manufactured beginning with the 1998 model year.)
- proposed changes in warranties that equipment suppliers must provide to the end user.

Proposed VR certification changes

CARB attorney Diane Johnston briefed the workshop participants on changes proposed

to CP-201, *Certification Procedures for Vapor Recovery Systems of Dispensing Facilities*, the parent document to all other certification and test procedures.

Current requirements—Currently, equipment (such as nozzles, hoses, swivels, breakaways, flow limiters and vapor recovery systems) may be tested and certified. A nozzle, for instance, is fitted to an existing operating vapor recovery system.

As long as the station meets prescribed tightness standards, the nozzle is then tested for a minimum of 90 days for durability and operability, and undergoes a 100-car efficiency test. Following additional tests by Weights and Measures, the California Fire Marshal and California OSHA, the nozzle may be certified as a suitable component for use with a specific vapor recovery system. The developer of the vapor recovery system, such as the dispenser manufacturer, does not need to be involved in this process. CARB maintains a matrix of acceptable components for use in specific vapor recovery systems. For warranties and other services, the end user must deal with his distributor and/or the manufacturer of the equipment.

Proposed Future Requirements—Under the new proposal for certifications, every certification will, in effect, be a system certification, with the owner of the certification as the key contact for all service and warranty issues for all system components. Whereas in the past, an independent nozzle could be certified as a separate but working part of a specific vapor recovery system, the nozzle manufacturer would now be forced to assume responsibility for the vapor recovery system as well as hoses and fittings.

An alternative to individual certifications will be a group certification. This certification will list all participants and include the name of a principal with primary responsibility for

contact and service. This option would, of course, require coordination of activities and agreement with all other suppliers. As in the previous example, the nozzle manufacturers would act as the principal and contact for all system components.

Industry implications—Reaction from attendees was uniformly negative. In addition to the obvious legal issues of restraint-of-trade implications, discussions ensued over who actually integrates vapor recovery systems and should have responsibility. Oil company representatives pointed out that under the new proposal, relatively trivial matters (such as changing hose or nozzle manufacturers) may also require a re-permitting of the station, depending on local regulatory requirements. Oil company representatives also noted that while they own dispensers and thus the vapor recovery system, the dealers generally own the nozzles, hoses and fittings.

Dispenser manufacturers pointed out that they generally do not integrate complete systems for the domestic market, but that distributors or the oil companies purchase all components and integrate them. Small component manufacturers commented that implementation of the proposed changes would put them out of business.

Most workshop participants voiced the opinion that the result will be an additional burden on the industry and may prove fatal to small suppliers. Based on comments made by workshop participants, it is almost certain that legal challenges will occur should CARB proceed with implementing the new procedures.

Warranty requirements

In addition to changing certification procedures, CARB is proposing to change warranty requirements for vapor recovery equipment from one to three years. Exceptions for equipment having a useful life of less than three years

are possible. For these items, manufacturers must specify the expected life. The proposed changes bring warranties back to the previous requirements, which are listed in Method 2-1 (the previous certification procedure, dating back to the late 1970s).

Schedule for rule making and equipment decertification

CARB discussed current schedules for finalizing Enhanced Vapor Recovery rules:

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| March 1999 | Next Public Workshop |
| July 1999 | Staff Report to the Board |
| August 1999 | Board Meeting |

Changes adopted by the Board are usually effective 30 days after filing with the California Secretary of State. However, CARB has the option to request earlier or later dates, or to include an effective date in the regulation.

Equipment not meeting the new regulation will be decertified, but may continue to be used for up to four years. However, repair or replacement parts are required to be certified. CARB discussed the availability of Limited Term Certifications for repair and replacement parts during the four-year phase-out of decertified equipment.

One subject not discussed during the workshop was the effect of CARB decertification on equipment in use outside California. Most regions requiring vapor recovery equipment at service stations also require the equipment to be CARB-certified and to have no separate provisions for time-phased replacement. Decertification by CARB could put much vapor recovery equipment that is currently in use outside California into legal limbo.

Fugitive emissions from interactions

In 1994, CARB presented information projecting an increase in fugitive emissions from 0.08 lb. to 2.9 lb./1000 gallons dispensed as the result of adverse interactions between ORVR and assisted vapor recovery systems. CARB claimed that the drop in system efficiency from 95 percent to 60.5 percent was caused by air being returned to the underground tank; saturating completely with hydrocarbon, this air grows in volume by almost 35 percent, all of which is lost through the vent or other leaks.

During September of this year, CARB staff performed emissions testing at two stations and discovered what the industry has claimed since 1994: actual emissions are substantially less than the previously assumed worst-case

scenario. The preliminary data also shows that losses are proportional to the vapor-to-liquid ratio at which the system operates.

For a system returning close to an equal volume of vapor, compared to the liquid dispensed, fugitive emissions reduced efficiency less than one percent with a pressure/vacuum valve on the vent at a daily throughput of about 5,000 gallons with 40 percent ORVR fuelings. For systems returning 15 percent excess air, compared to dispensed gasoline, efficiency losses increased to more than nine percent at throughput rates of 4,300 gallons per day and 45 percent ORVR fuelings.

In updating emissions inventories for California, CARB reduced the previous fugitive emissions estimate of 2.0 lbs. to 1.19 lbs. per 1,000 gallon and assigned an efficiency decrease of 14.2 percent to assisted Stage II systems at 100 percent ORVR penetration. This number appears high when compared to actual experimental data.

Other data shown by CARB on quantifying future emission inventories indicates the future requirements that CARB will levy on this industry. The data project a future 95 percent overall in-use efficiency for Stage I and Stage II systems, and a complete elimination of emissions resulting from the ORVR/Stage II interactions. While these are worthy goals, they are not realistic. As I previously discussed in my article on the history of vapor recovery in the July issue of *PE&T* ("An Update on Vapor Recovery in the U.S.," page 16), the rest of the world thinks that a certification level of 95 percent is unrealistic. In-use efficiencies at that level will require nothing short of miracles.

Leak testing for balance systems

While not discussed at the workshop, CARB made a recent response (October 17, 1998) to the California Air Pollution Control Officer's Association (CAPCOA) priorities for solving vapor recovery systems problems. CARB's response included a curious item: CAPCOA had requested that annual leak decay testing be required for balance systems. CARB's response was that balance stations equipped with PV valves operate at slightly negative pressures 90 percent of the time, indicating that such testing is redundant.

However, a CARB report issued in November 1996 showed results of pressure decay tests at 35 randomly chosen balance stations: only nine percent of the stations passed the test; 43 percent failed the five-minute pressure decay test; 48 percent could not be pressurized to two inches water column at a nitrogen fill rate of five cfm in order to perform the test.

Depending on weather conditions, all underground tanks will, at some time, experience negative pressures. In view of the published report, the recent response to CAPCOA must be substantiated by significant pressure data. It is difficult to see how stations that cannot be pressurized at five cfm would experience negative pressures for long periods. Finally, diurnal cycle effects generally last longer than 10 percent of the time. During quiet periods, especially at night, hydrocarbon saturation and pressure in the ullage in underground tanks will increase, resulting in potentially significant emissions from leaking systems. □

Changes for CARB?

I believe the recent CARB Workshop and response to CAPCOA indicate that three areas of change are necessary for new procedures to move ahead:

1. CARB should rethink its approach to changing certification requirements. If the current course is continued, it is likely that future discussion will occur in the courtroom.
2. In my opinion, CARB is still not comparing assist and balance vapor recovery systems on an equal basis. Fugitive emissions estimates for assist systems are overly pessimistic, while balance system interactions with ORVR are underestimated. In addition, CARB needs to ensure that its future planning on attainable emissions improvements is realistic.
3. While CARB is a state agency with responsibility for California, in terms of vapor recovery, California affects the entire country. In light of the prevailing requirements in other states, CARB management should consider carefully how it deals with equipment decertification issues. Assist systems represent only 17 percent of the installed base in California. Outside California, very few balance systems are installed, with the exception of New Jersey, Oregon and Missouri.