

Minutes of the Emergency Vent Conference Call on September 26, 2002

Conference Call Date and Time – The Emergency Vent Conference Call was held on Thursday, September 26, 2002 from 10:00 am to 12:30 pm.

Background – The ARB is developing Enhanced Vapor Recovery regulations for AST vapor recovery systems. As part of this effort, ARB has developed a workgroup of AST manufacturers, component manufacturers, and regulatory agencies (i.e. AST EVR Workgroup) to identify issues with current AST vapor recovery systems and to identify improvements to these systems. One of the items discussed in the Workgroup meetings was the emergency vents (E-Vent). There are findings by ARB and CAPCOA indicating loss of vapor integrity at the sealing surface of E-Vents. It was suggested by the Workgroup to develop an Emergency Vent Subcommittee to look at existing emergency vents and other alternatives. The people participating in this conference call expressed interest in this subcommittee.

Purpose of Subcommittee – To develop solutions and alternatives to E-Vent emission issues.

E-Vent Overview – Purpose of E-Vent is to relieve excessive pressure from exposure to fire or a sudden impact. E-Vents are designed so that the maximum pressure in the AST does not exceed 2.5 psig. Existing designs utilize a two-piece unit, a base with a top. The top is designed to lift off the base at a specified internal pressure. The mating surface between the base and the top is either brass-to-brass or utilizes an o-ring.

There are numerous codes outlining E-Vent requirements such as the Uniform Fire Code (UFC), National Fire Protection Agency (NFPA), Underwriters Laboratory (UL), and the Southwest Research Institute (SRI). E-Vent sizing requirements are also included in some of the above codes.

UL certifies E-Vents using the salt exposure and air flow tests per ASTM standards. UL Certified E-Vent manufacturers are listed on UL's website.

For ARB's proposed AST EVR regulations, E-Vents will be evaluated for a period of 180 days. During this period, there shall be no indication of vapor leaks at the E-Vent. Leaks are usually indicated by bagging the component or using a gas detector. If the E-Vent does not pass the vapor integrity testing or any other testing outlined by the EVR regulations, the vapor recovery system will not be certified.

E-Vent manufacturers were asked if they believed the existing E-Vents could pass ARB's proposed testing standards. Their response was that no testing has been conducted on existing E-Vents to see if they can maintain vapor integrity throughout a 180-day period.

One suggestion at the Workgroup meeting on July 23, 2002 was to increase the E-Vent opening pressure from 0.5 psig (8 ounce) to 1.0 psig (16 ounce). The reason for this suggestion is to increase the weight of the E-Vent lid, thereby providing more compression on the seal surface and thus improve E-Vent vapor integrity. An E-Vent manufacturer stated that the shipping weight of a 6 inch, 8 ounce E-Vent is approximately 16 pounds whereas a 6 inch, 16 ounce E-Vent is approximately 37 pounds. There was participant consensus that this change would improve E-Vent vapor integrity. There are E-Vents already manufactured that are designed to open at 1.0 psig, however, these are mostly being used on new installations and there is no requirement specifying which type of vent to use.

ARB outlined other issues with the performance of existing E-Vents. There have been cases in which the E-Vent lid was stuck to the base. In other cases, tank testers would lubricate either the brass-to-brass seat or the o-ring to pass a pressure integrity test. A question that arose from these findings is whether the E-Vent would perform to UL certification requirements if found under the above conditions? Secondly, what are the operations and maintenance requirements on E-Vents? According to one AST manufacturer, it is stated in their Owners Manual to conduct an annual inspection of the E-vent to ensure it lifts off of the base. ARB explained that every vapor recovery component's operations and maintenance manuals would need to be approved by ARB prior to EVR system certification. ARB will evaluate E-Vent maintenance manuals and determine if the maintenance is reasonable.

Rupture Disk Alternative – Section 7902.2.6.2 of the Uniform Fire Code, 2000 Edition, lists rupture disks as alternative emergency venting devices. It was a suggestion of the AST EVR Workgroup to evaluate rupture disks for technical and economic feasibility.

A rupture disk manufacturer gave a technical overview of their rupture disks. The overview included current uses of rupture disks, factors to consider in selecting a rupture disk, and general cost information. Some of the factors for selecting a rupture disk include:

- operating ratio;
- rupture tolerance;
- cycling; and
- environmental parameters (i.e., corrosivity).

The disk manufacturer has two types of rupture disks, low performance and high performance. High performance disks have a rupture tolerance of ± 0.25 psig whereas the low performance disk has a rupture tolerance of ± 1.0 psig. Their rupture disks can be mounted on a threaded fitting, between ANSI flanges, or via hold-down rings. Use of their muffled outlets will protect the rupture disk from physical damage.

One of the participants asked what the cost will be for a standard low performance rupture disk with a rupture pressure of 1.5 psig. The disk manufacturer replied that a high-quantity, low-performance rupture disk could cost approximately \$60-\$120 each

and up to \$150-\$300 with a mounting flange included. The cost for a low quantity, high performance disk could cost approximately \$300 each. The rupture disk manufacturer further explained that the above costs would vary from company to company and would also depend on the technology used to manufacturer the disk.

The next AST EVR Workgroup meeting was tentatively scheduled for November 6, 2002. Pat Bennett will notify all interested participants regarding the date, time and location of the meeting.

Participants via teleconference:

Pat Bennett, ARB
Joe Guerrero, ARB
Carroll Maggie, Underwriters Laboratory
Wendy Winter, Underwriters Laboratory
Phil York, Underwriters Laboratory
John Ekhtiar, Convault
John Lewis, Utility Vault Company
Chris Demarest, Utility Vault Company
Paul McWhorter, EcoVault, SPC Corp.
Jerry Schollmeyer, Morrison Bros. Co.
Mike Lattner, Morrison Bros. Co.
Don David, Clay & Bailey Mfg. Co.
Robert Hamm, OSECO
Jeff Scoville, OSECO