



California Environmental Protection Agency

AIR RESOURCES BOARD

Proposed Vapor Recovery Compliance Test Procedure TP 201.6-C: Determination of Liquid Removal Rate

Public Workshop: June 20, 2001

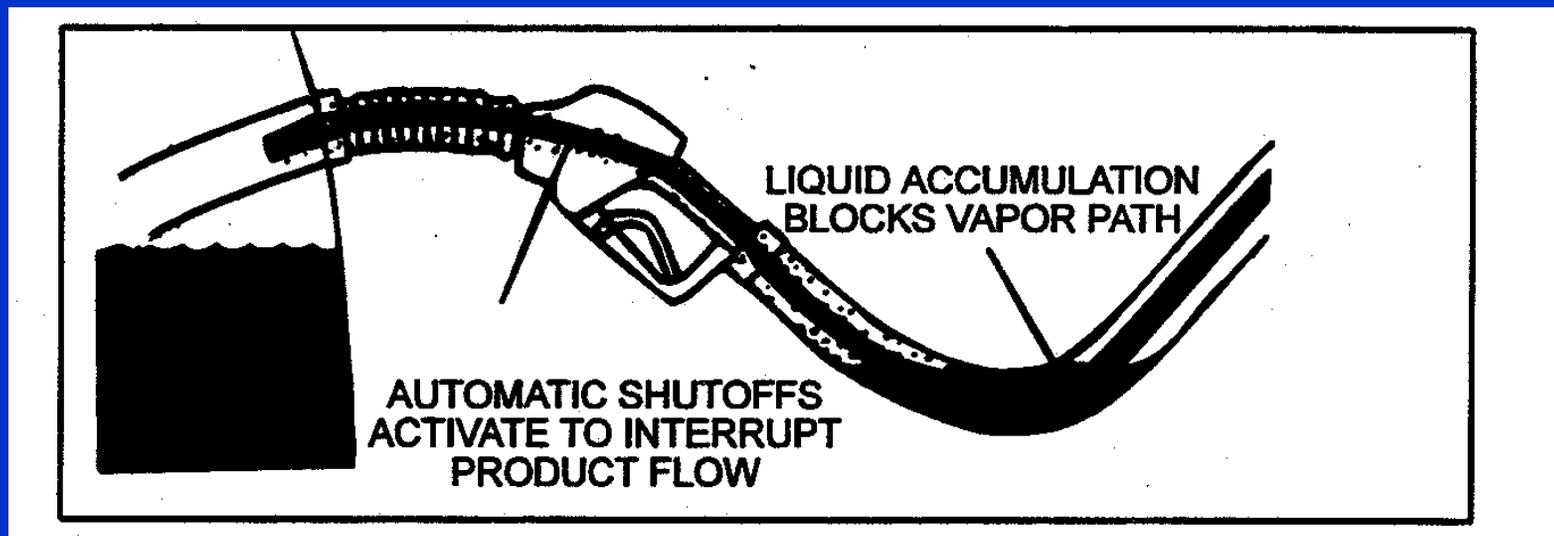
Presentation Outline

The following subjects will be discussed today:

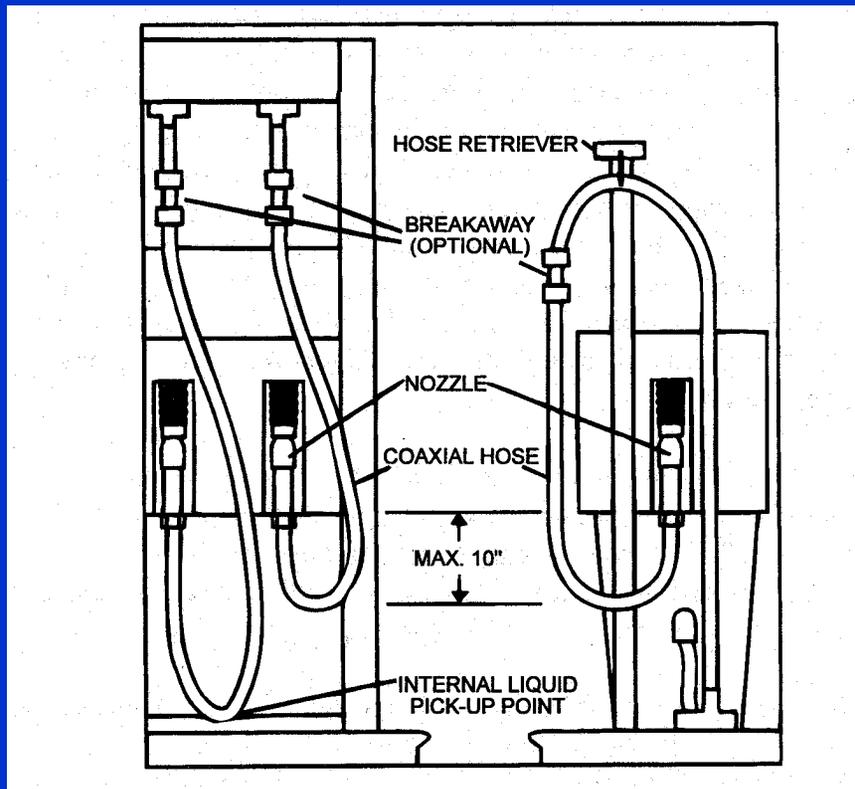
- Background Information
- Compliance Issues With TP-201.6
- Summary of Proposed Compliance Procedure
- Advantages of the Proposed Compliance Procedure

Background

Liquid removal devices are designed to prevent blockages and nozzle shutoff caused by the accumulation of liquid in the vapor passage of coaxial hoses. Blocked vapor path = increased emissions!



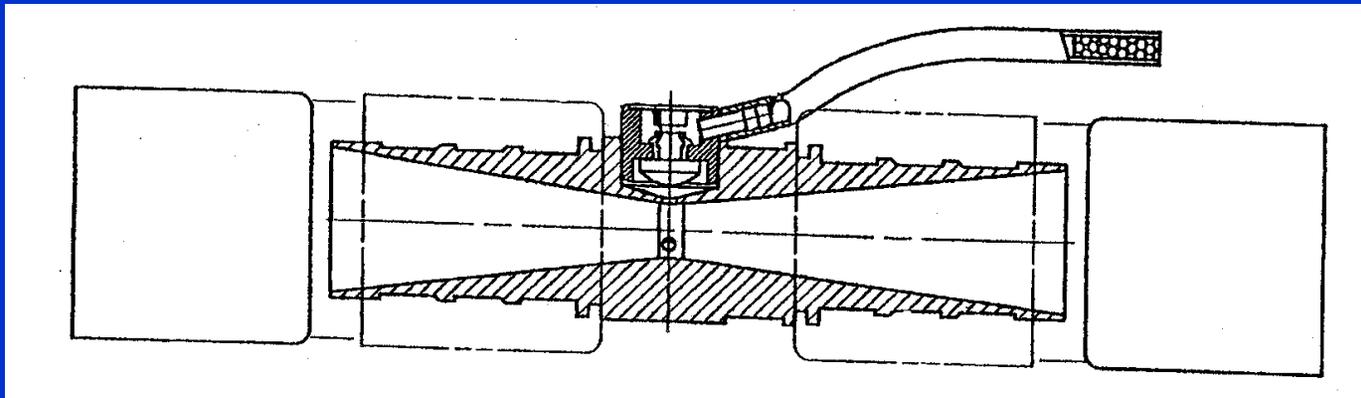
When Are Liquid Removal Devices Required?



Certified configurations which allow the drape of the hose to extend more than 10 inches below the base of the nozzle when hung on the dispenser. (Refer to Executive Order G-70-52-AM)

Hose-Based Liquid Removal

In this configuration product flows through a venturi located in the liquid path. This flow creates a vacuum allowing valves ported to the venturi to open and draw in liquid from the vapor path of the hose.



Hose Based Liquid Removal Systems



Performance Standard

Section 4.9.1 of CP-201 states the minimum removal rate, averaged over a minimum of 4 gallons, shall equal or exceed 5ml per gallon. The minimum dispensing rate for this requirement shall be specified during the certification process.

Common Problems Associated With Liquid Removal Devices

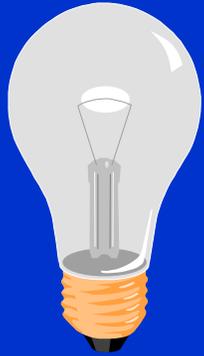
- Low flow rates affect performance of hose based systems
- Disconnected liquid pick-up (slurpee) tubes
- Clogged liquid pick-up (slurpee) tube filters
- Improper hose installation (i.e., nozzle end installed on dispenser)

Common Problems Associated With Liquid Removal Devices



Compliance Issues With Existing Liquid Removal Test Procedure

- Conducted “with no other refueling activity occurring at the facility”
- Time consuming
- Gasoline is introduced & drained three times per test
- Testing required at three different hold open latch settings of the nozzle
- Procedure fails to specify nozzle/hose orientation when dispensing
- Separate step specified to measure flow rate



Proposed Solution

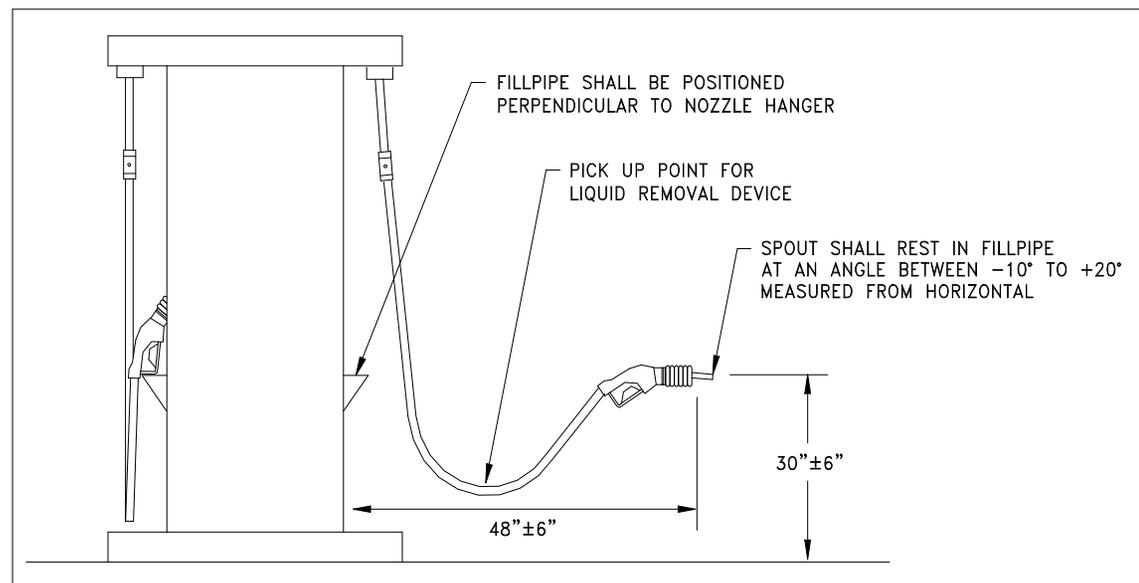
CARB will develop a separate:

- Certification Procedure
- Compliance Procedure
- Process for Approving Compliance Procedure

Summary of Proposed Compliance Procedure

- Drain the hose into a graduated cylinder
- If amount drained is greater than or equal to 25 ml, immediately conduct a liquid removal test
- Pour 150-175ml of gasoline into the vapor path of the hose through the nozzle bellows
- Dispense 7.5 gallons at high clip setting with nozzle properly oriented and calculate flow rate
- Drain any remaining fuel from the hose
- Calculate removal rate (introduced - remaining) / gallons dispensed

Proposed Nozzle Orientation

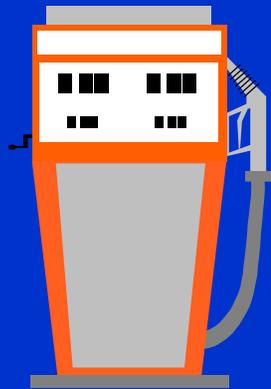


Advantages of Proposed Compliance Procedure

- Compliance procedure is less time consuming
- Only hoses with > 25 ml of fuel are tested
- Amount of fuel dispensed reduced from 10 to 7.5 gallons
- Nozzle configuration specified when fueling
- Other dispensing allowed
- Test run at high flow rate only

Conclusion/Questions?

Submit written comments no later than July 9, 2001 to:



Lou Dinkler

MLD Vapor Recovery Certification Section

California Air Resources Board

P.O. Box 2815

Sacramento, CA 95812

e-mail address: ldinkler@arb.ca.gov