Support the Consumer
Require 10-Micron Diesel Fuel Filter

Reported problems: Issues with high pressure common rail diesel engines -- plugged vehicle fuel filters, fuel pump failure due to overheating, internal wear of engine components (pistons, seats), sticking injectors

Causes of problems: Particulates and water contamination, corrosion of steel components of storage system, salts

What issues does a 10-micron filter address? Particulates and water contamination (microbial growth, flakes, etc)

Industry Research: Corrosion in ULSD systems (EPA), Salts and diesel cleanliness (CRC), Individual company research

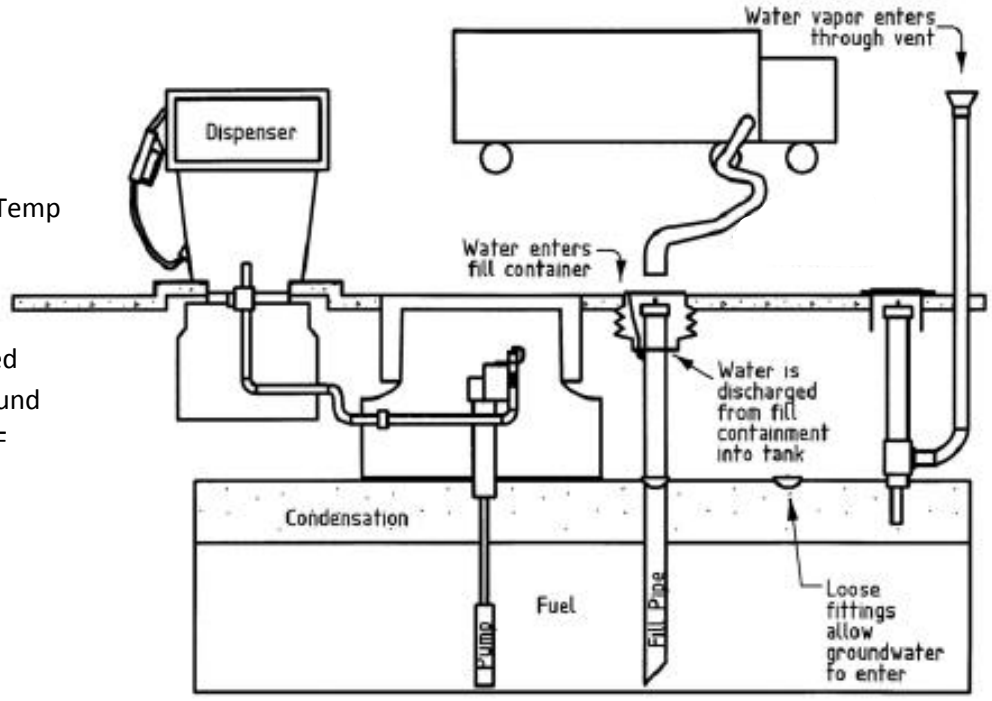
Solutions to particulate/water : Install 10-micron filters at retail (low flow-rate) stations and Proper storage tank maintenance

Who supports 10-micron filters? Truck and Engine Manufacturers Association, GM, VW, API

Study	Issue/Topic	Finding/Results	Applicability to 10-micron filter discussion?
PMAA Testing Program – Diesel Filters (Research Laboratories, Inc.)	Comparison of 30- and 10-micron filter performance in differing temperatures	30 micron filter at minus-10^{0}F filters twice as many gallons as 10 micron filter	**No**. Filter tests done at -10F while the fuel is stored underground and is typically 55^{0}F.
CRC-667, Diesel Fuel Storage and Handling Guide	Storage and handling of diesel fuel	Particle erosion can take place in common rail injectors	**Yes.**
Clean Diesel Fuel Alliance -- Guidance for Underground Storage Tank Management at ULSD Dispensing Facilities	Storage and handling of diesel fuel	Solid or semi-solid contaminants, microorganisms, water, or fuel quality problems (e.g., high paraffin content, fuel degradation, etc.) are the most likely causes of filter blockages.	**Yes.**
Caterpillar, Bulk Fuel Filtration for Off-Road Applications (IFC10-019) (R. Douglas, Caterpillar)	Need for filtration of off-road diesel	Filtration before delivery to the vehicle improves vehicle performance	**Yes.** Vehicles benefit from filtered fuel
SAE, Internal Injector Deposits in High-Pressure Common Rail Diesel Engines (2010-01-2242) (Afton Chemical Corp.)	HPCR injector deposits	Salts in fuels causing sticking valves can be addressed with an additive	**No.**

Ambient Temp

Fuel stored underground is 50-55° F Temp



Diesel filter clogged with the “slime” resulting from microbial activity in the storage tank