



Preventive Maintenance Guide for Diesel Storage and Dispensing Systems

This guide provides practical tips for maintaining underground storage tanks (USTs), minimizing fuel contamination and maximizing fuel system cleanliness necessary for diesel equipment. Adopting these guidelines can help improve fuel quality, prolong equipment life, reduce corrosion and owner's operating expenses. All suggestions below should be performed in a safe, legal and environmentally sensitive manner.



Good water management eliminates most fuel quality problems:

Keep water from entering tanks to minimize tank water bottoms:

- Remove standing water, ice and/or snow around tank fill covers.
- Make sure all tank opening bungs and caps are tight – Inspect and replace any broken gaskets.
- Keep fill and vapor recovery buckets clean – pump out any water, clean out excess fuel and dirt (don't depress drain plungers allowing contamination into the tank).
- Verify tank vents are installed and caps are sealing properly – replace cap or repair as needed.
- Avoid prolonged periods of low tank volume to minimize tank water from condensation.

No detectable water is desirable and if found should be removed as soon as possible. Test removed water for microbes. If detected, take appropriate corrective action. If biocide is used, expect more frequent filter changes for a brief period.

Methods of detecting contaminants/water

Tank gauging—physically stick tank bottoms with water finding paste weekly and compare to automatic tank gauge electronic measurements (if available).

- The following will affect the water level measurements: Striker plate below gauging equipment, drop tube tank protection devices, sloping tank, and correct use of water finding paste.

Examples of microbial contaminated samples and corroded fuel system parts:



F1. - ATG Floats w Corrosion Products



F2. - Diesel Tank Bottom Sample w Microbes



F3. - Corroded Dispenser Filter

(Courtesy Innospec Fuel Specialties and Biodeterioration Control Associates)

Evidence of contaminants and/or water:

Dispenser filters	Other indicators
<ul style="list-style-type: none"> • Clogging/frequent replacements 	<ul style="list-style-type: none"> • Meter failure
<ul style="list-style-type: none"> • Slow flow, especially after new receipts— indicates possible contamination (should be >5 gallons per minute) 	<ul style="list-style-type: none"> • Automatic Tank Gauge (ATG) water warnings/alarms • Automatic nozzle shutoff failures • Customer complaints
<ul style="list-style-type: none"> • Observed rust, microbial slime or other contamination 	<ul style="list-style-type: none"> • Check valves not seating

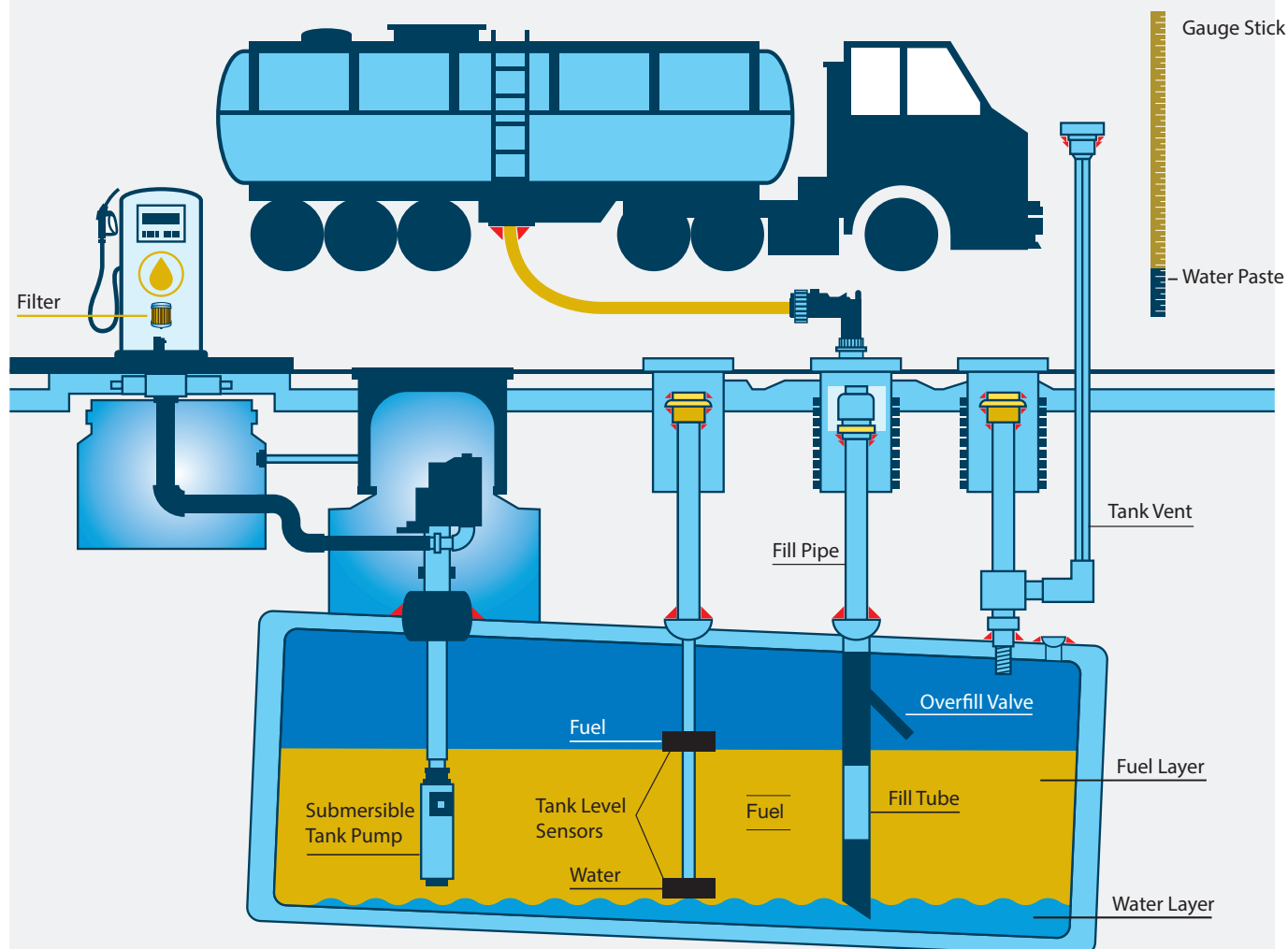
Consider visual observations for evidence of corrosion and microbial activity

(see figures on previous page).

- **When changing dispenser filter, use filter with recommended ratings and inspect removed filter for rust, microbial and/or other contamination.**

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| <ul style="list-style-type: none"> ✓ Check for tank water bottoms before and after fuel deliveries. ✓ Evaluate the use of corrosion inhibitors and/or biocide to help control problematic systems. ✓ Consider use of water-sensing filters for diesel retail dispensers to help indicate water presence. | <ul style="list-style-type: none"> ✓ Carefully take weekly dispenser nozzle samples in a clear jar. Fuel should be clear & bright without haze or particulates. ✓ Unless needed as retains, carefully dispose of samples in an approved, environmentally sound manner. |
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Diesel Storage and Dispensing System



Potential Water Intrusion Areas in Red