



Petro Specialties, Inc.

Operation & Maintenance (O&M) Manual

PetroVac - Vacuum Pump System (Patent Pending)

1. System Overview

The PetroVac vacuum pump system maintains a vacuum in the interstitial space to detect leaks in double-walled tanks and piping. The TLS-450Plus console monitors vacuum levels, controls the pump, and provides alarms for abnormal conditions.

2. Sequence of Operations

1. TLS-450 monitors vacuum in the interstitial space.
2. System maintains vacuum between -9 psid and -3 psid.
3. If vacuum degrades, the TLS-450 energizes the PetroVac pump via the turbine relay.
4. The SCLD card scans every 8 seconds for readings.
5. Alarm is triggered if vacuum drops to within 1.7 psi of atmospheric pressure.
6. Warning is triggered if replenishment flow exceeds 100 liters/hour.
7. Alarms and warnings are displayed visually and audibly on the TLS-450 console.
8. Product delivery can be disabled if an alarm is detected (if permitted by code).
9. Manual intervention is required to diagnose, clear alarms, and restart the system.

3. Routine Maintenance

- **Monthly:** Inspect vacuum tubing and fittings for leaks or damage.

- **Quarterly:** Check for any blockages or liquid accumulation in the filter housing.
- **Annually:** Perform the monitoring certification to include cycling the PetroVac system per the State of California Code of Regulations, Title 23, Division 3 Chapter 16 and your local CUPA requirements.
- **As Needed:** Replace vacuum tubing or fittings if leaks are detected. Ensure all wiring remains secure and undamaged.

4. Troubleshooting

Symptom	Possible Cause	Action
No vacuum	Pump not running	Check power and control box
Frequent alarms	Leak in system or tubing	Inspect all connections and interstitial space
No alarm when expected	Faulty sensor or console	Contact a Veeder Root technician for assistance

5. System Shutdown and Restart

- To shut down, use the power switch on the control box.
- To restart after an alarm, diagnose and resolve the cause, clear the alarm on the TLS-450 console, and restore power to the system.

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Veeder-Root has granted limited approval for the use of the PetroVac system as a vacuum source with the TLS-450Plus console and SCLD system, in place of a submersible turbine pump, for specific applications as evaluated by Ken Wilcox Associates. Documentation of this limited approval from Veeder-Root is available from Petro Specialties, Inc. upon request.