

## Petroleum Storage Equipment – Design, Installation & Maintenance

As a family- and employee-owned business that owns its real estate, Stewart's puts a tremendous investment into our high standards for petroleum storage equipment and its maintenance. We live in the communities we serve, and keep a steady focus on compliance excellence to protect the environment and our drinking water sources.

All of our newly installed gasoline facilities meet and/or well exceed all relevant codes and regulations including NYS DEC codes 6NYCRR part 613, NFPA (National Fire Protection Association) codes, and the New York State Uniform Fire Prevention and Building Code. We are proud to lead the industry in New York State for petroleum storage compliance.

### <u>Tanks:</u>

To protect our shared natural resources, our new systems utilize the latest in double-walled Fiberglass-Reinforced Plastic (FRP) tank design, system-wide secondary containment, 24/7 electronic monitoring, leak detection, overfill protection, spill prevention, and remote alarm reporting. We have not experienced a release to the environment from similar FRP systems in the 16 years we've been installing them.

Our FRP tanks by their very nature are corrosion-proof, and thereby do not experience degradation from contact with soil or groundwater. This ensures a long-lasting tank with walls that retain their structure and tightness for decades. Our tanks are also double-walled, or in other words are constructed as a "tank within a tank", with an interstitial space that is brine-filled and monitored electronically for any change 24 hours a day, 7 days a week. In the rare event of a leak in either the inner (primary) or outer (secondary) wall, the change in brine level will instantly alert us of an issue. Any alarms triggered by our system are visible and audible at the shop, and are also visible at our headquarters via web console and email/mobile phone for the fastest possible response. And the double-walled construction ensures that the product stored never reaches the environment, allowing time to empty the vessel and make a lasting, quality repair.

The FRP tanks deliver stored fuel via submersible turbine pumps (STPs) to our dispensers under pressure. The STPs and ancillary tank-top equipment are enclosed within secondary containment sumps sealed to the top of the tanks. If a leak were to occur in this equipment, it would be fully contained by the sump and would not reach the environment. All STP sumps are monitored 24/7 by liquid sensors, which instantly trigger an alarm at the shop and our headquarters as above in the presence of liquid (even water).

Our FRP tanks are also specially equipped to prevent overfilling during a fuel delivery via an automatic shut-off mechanism which stops the flow of fuel into the tank when it reaches 95% capacity (but does allow the deliverer to safely empty the delivery hose into the tank before disconnecting). A 15-gallon spill bucket surrounds the fill port so that, in the event of a mishap during hose handling, any spilled fuel is immediately contained and will not reach the environment. Venting of the tanks includes Stage I Vapor Recovery, which returns any gasoline vapors from our tanks to the truck during delivery to prevent the unwanted release of petroleum vapors to the air.

## Piping:

Flexible double-walled piping is used on all of our underground systems. The flexible design not only avoids the stress failures that befall rigid piping, but also gives the piping layout a seamless design from the tanks all the way to the dispensers. Fewer fittings means fewer opportunities for a leak. The interstitial space between the two piping walls is monitored electronically 24/7 and would allow a leak to drain safely back to the tank sump without ever reaching the environment. The piping is also installed in a 4" diameter conduit, giving a de-facto

# P.O. Box 435 Saratoga Springs, NY 12866

triple containment construction and providing greater physical protection to the outer wall. The pressurized inner wall which carries the petroleum to the dispensers is also monitored 24/7 by an electronic line leak detector, which in the event of a pressure loss not only triggers alarms at the shop and our headquarters, but also shuts down the flow of fuel from the associated tanks to stop product loss.

#### Dispensers:

Our dispensers also contain spill prevention designs. Beneath every dispenser is a secondary containment sump which catches and contains any leaks or drips that might occur inside the dispenser cabinet, thus preventing the release of petroleum to the environment. Liquid within this sump is allowed to communicate through the interstitial space of the piping back to the tank's STP sump, there triggering the liquid sensor alarm at the shop and our headquarters for a rapid response and repair.

Breakaway fittings are installed on the dispenser hoses which allow all hoses to safely release from the dispenser and stop the flow of fuel in the event of a drive-off where the nozzle is still in a customer's tank. Nozzles are all equipped with an automatic shutoff feature to alert the customer that their tank is almost full, thereby reducing the likelihood of an overfill. Shear (or "impact") valves are installed in piping beneath the dispensers and are designed to break or shear at a controlled point in the event of a car-dispenser accident, automatically shut off the flow of fuel from the tanks, and prevent backflow from within the affected dispenser.

### Electronic Safeguards:

Besides the line leak detectors, sump liquid sensors, and interstitial liquid sensors mentioned above, our system operation is monitored continuously by an automatic tank gauge (ATG) which acts as the "brain". It receives and relays input 24/7 from the various sensors and probes, monitors inventory levels, measures deliveries, senses for water, and alerts Stewart's of any unusual operating conditions or alarms. Our systems are also equipped with one-touch "E-Stop" buttons that allow a user to instantly stop the flow of fuel and disconnect all power and communication circuits to the dispensers in the event of an emergency.

### Maintenance, Training & Inspection:

Once a facility is in operation, multiple measures are taken to maintain a safe facility. Our procedures include constant automatic gauging of fuel storage tanks to reconcile inventory daily. We know every day if our physical inventory of fuel matches what our records show we should have, and any deviations are vigorously investigated. Fuel dispensers are calibrated regularly, and the Department of Weights and Measures checks the calibration of the pumps on a routine basis. This ensures that an accurate inventory reconciliation is possible.

Although we are years ahead of the EPA deadline for performing this, Stewart's is currently inspecting and hydrostatically testing its secondary containment and overfill protection equipment to prove functionality in the unlikely event of a primary containment failure. Tank top sumps, under-dispenser sumps and fill port spill buckets are carefully inspected and then filled with water for a set time period to prove tightness. Overfill protection devices such as automatic shut-off are pulled, inspected, and their shutoff functionality is confirmed. This is all repeated every 3 years.

We provide initial and continuous Class C Operator training to our shop personnel and maintenance employees in order to equip them to properly operate a petroleum bulk storage facility with emphasis on protection of human health and the environment. Employees are trained to stop, contain, clean, and report all surface spills to a Corporate Spill Responder and involve emergency responders as needed. All shops stock spill clean-up materials. This training program will become mandatory in late 2016, however Stewart's Shops Corp. has been training this way since 2003. We also fully inspect our systems and inventory records on a monthly basis and then audit those inspections annually. Our inspections go far beyond the NYSDEC inspection scope, which occurs every 3 years. Abbreviated monthly inspections will be required by NYS after this year, but Stewart's has been conducting thorough monthly inspections for the past 13 years.

We simply cannot overstate our commitment to operate safe, compliant, well-maintained underground storage tank systems for the protection of our neighborhoods and local environment.







