How USTs Held Up During Unprecedented Floodwaters

Highlights from NTC Presentation 9/12/2022
Annette Ademasu WA St. Dept. of Ecology (aade461@ecy.wa.gov)

Recommendations for UST Inspectors:

- Get Flood Maps of your area. Locate and document UST sites that could be prone to flood events.
- Prepare a short hand out for owners relating to USTs and Floods.
- During your routine (every 3 year) inspections, give handout to flood prone sites and educate owners on preventive maintenance and actions to take during flood.
- Know your Fuel Quality Agency (i.e. Dept. of Agriculture) staff names and contact information. Introduce yourself and get to know peers during non-flood times.
- Learn from flood-experienced contractors, have company staff names and contact information.
- After flood emergency, owners may be experiencing trauma, shock, and be overwhelmed. Using consideration, empathy, and listening goes a long way, when in the field assisting owners, keep it simple and brief. Gather UST system status information including fuel and water levels, sensor status, leak status, and damage to UST system components.

Recommendations for site owners near flood prone areas:

Preventive maintenance:

- #1 Suggestion from service providers: Replace probe caps frequently. Inspect both fill and probe caps and gaskets, good gasket seal paramount, if worn replace.
- Conduct pressure decay test on each tank (even diesel) to find vapor leaks, which will find floodwater entrance points.
- Take detailed photos of tank pad, including cracks, raised areas, depressions, etc. Look for changes, year to year (use white paint over cracks, document if risers are vertical or slanted).

Prior to Flood Evacuation:

- Take inventory printout to document fuel and water levels.
- Turn off power to turbines and dispensers.

After floodwaters recede:

- Print inventory and check water levels; determine which tanks have water.
- Stick tanks with water finding paste (solid thin layer, keep stick in tank one minute).
- Inspect concrete tank pad, look for new cracks, newly raised areas, new depressions. If significant changes, contact service provider to investigate UST system.
- Service provider can vacuum out sumps and spill buckets. Do not use sparking equipment (shopvac) around gasoline vapors. Sediment will be everywhere.
- If water in tank:
  - Provider can vacuum out water, wait 24 hours, and vacuum water again. Water along tank ullage and in fuel needs time to collect in bottom.
- If fuel has phase separated in tank (water layer/ethanol layer):
  - Contact Fuel Quality Agency (i.e. Dept. of Agriculture) for advice to owner on fuel quality.
  - Service provider can vacuum out bottom layers, wait 24 hours, and then vacuum layers again. Dept. of Agriculture may require field sampling (i.e. bacon bomb) from bottom to top of fuel to determine if further actions needed to meet fuel quality (i.e. flashpoint, octane).
  - Do not empty entire tank contents if there is evidence of compromised tank backfill, washed away pea gravel, or tank pad is undermined. First, have a certified tank installer survey the tank, piping, backfill, and tank nest water levels to determine when and how to ballast tank and remove fuel.
  - If fuel is ruined and there is no evidence of ballast problem, provider can vacuum out all contents of tank.

Tips from contractor: When removing a probe adaptor, you may hear a vacuum. During flood, if probe cap gasket is bad, a vacuum can create a siphon effect and draw water into tank until water is below lip. Even without flooding, this can happen if tank nest water is higher than a failed gasket above the tank.

Tips from businesses: Mayor needs to give dollar losses to Federal Government to make determination if FEMA eligible. Keep all flood damage receipts for losses to date, current work done and include future work costs to repair floodwater damage and get to Mayor or official working with Federal Government.