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REGULATORY BULLETIN

Liquid Fuels Handling Code

Overfill Protection Procedure

The petroleum industry has experienced operating problems with overfill protection devices (OPD's). OPD's installed in storage tanks and designed for gravity drop applications, lack capability for pressure deliveries.

In order to provide additional options in this situation, the Liquid Fuel Handling Code requires one of the following two options: An *approved overfill protection device* that limits tank fills to no more than 95% of tank volume or an *approved overfill protection procedure* that limits tank fills to no more than 90 % of tank volume.

It is the equipment owner's responsibility to ensure that either an overfill protection device or an overfill protection procedure is in place. The fuel distributor is responsible for verifying the equipment or procedure being used and to deliver the product in a safe manner.

The following example of an overfill protection procedure was developed by an industry committee in order to prevent overfilling of the tank during pressure fill applications. The Fuels Safety Program approves this procedure.

In order to ensure that the correct tank chart is being used for the tank, the following procedure shall be used to verify the accuracy of the chart at the time of the first delivery. The information obtained shall be recorded and shall be used for future deliveries.

Procedure to Verify Chart Accuracy Relative to the Tank

1. Start with a minimal volume in the tank (less than 20% of nominal capacity).
2. Deliver 1,000 litres of product or 20% of the nominal tank capacity, whichever is the lesser volume, into the tank. Close the flow control valve and disengage the power take-off (PTO).
3. Re-dip the tank to determine, from the dip chart, the volume of product in the tank.
4. Subtract the opening inventory from the volume of product in the tank and compare this volume to the volume delivered as indicated by the truck meter.
5. If these amounts vary by more than 2.5%, discontinue product delivery and advise site attendant and supervisor that the dip chart provided is not accurate. (The attendant/supervisor should arrange to have the dip chart corrected.) Otherwise, repeat

the process using delivery volumes from Step 2 until 90% of the tank volume (the maximum fill level) has been reached.

When the tank chart has been verified to be a correct representation of the storage capacity of the tank, the following fill procedure may be used.

1. Ensure that the correct tank chart is being used for the tank and record for future deliveries.
2. For the first delivery, verify the accuracy of the chart relative to the tank as per the procedure above.
3. Dip tank and determine opening inventory from tank dip chart.
4. Calculate tank capacity as 90% of the nominal tank size.
5. Calculate maximum delivery volume (Ullage).
Ullage = Tank Capacity - Opening Inventory
6. Pre-set the delivery volume on the auto-stop truck meter to a quantity less than or equal to the ullage.
7. Deliver product.
8. Record the following information on the bill of lading:
 - opening dip;
 - opening inventory from tank dip chart;
 - tank size;
 - tank capacity at 90% fill; and
 - ullage.

When filling underground and aboveground storage tanks, deliveries are to be by "tight fill" or by "submerged delivery". Where appropriate these conditions may be achieved as follows:

- Nozzles can be equipped with a "donut" or similar device that will provide a tight seal with the fill pipe collar to reduce the driver's exposure to benzene.
- Where aboveground tanks are provided with only two openings, one for the pump and one for the fill, a "donut" cannot be used. The nozzle must be provided with a "stinger" or similar device to prevent splash loading. The driver may be required to use a respirator should benzene levels warrant.

Approved by: _____

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