Advanced Overfill Monitoring & Alarm Capabilities with OMNTEC DDL

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OMNTEC
Advanced Tank Monitoring & Leak Detection

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Introduction

- **Overview of Federal and State environmental and regulatory compliance for Overfill Prevention**
- **Introduction to the OMNTEC Delivery Defender Lite (DDL), Delivery Defender and MINI-ME Remote Monitor**

Federal and NFPA 30 Regulations

21.7.1.5

An underground tank shall be equipped with overfill prevention equipment that will either alert the transfer operator when the tank is no more than 90 percent full by triggering an audible and visual high-level alarm **OR** automatically shut off the flow of liquid into the tank when the tank is no more than 95 percent full.

California Regulatory Landscape

- California Code of Regulations (CCR) Title 23: Mandates for spill prevention and monitoring
- LG150-3 Compliance: Requirements for monitoring product deliveries
- Need for real-time, product specific monitoring to ensure compliance

California Code of Regulations (CCR) Title 23

2635 (C) (1)

(1) All underground storage tanks that do not meet paragraph (2) below shall be equipped with overfill prevention equipment that does not allow for manual override and meets one of the following requirements:

(A) Alert the transfer operator when the tank is 90 percent full by restricting the flow into the tank or triggering an audible and visual alarm;

(B) Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills;

California Code of Regulations (CCR) Title 23

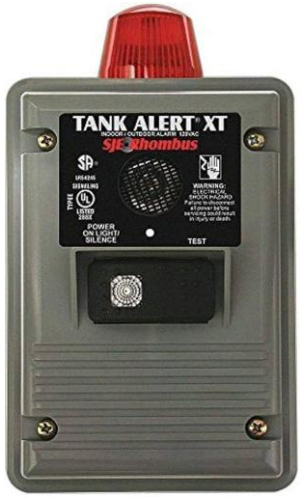
2635 (C) (1) (cont'd)

(C) Provide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or

(D) Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling.

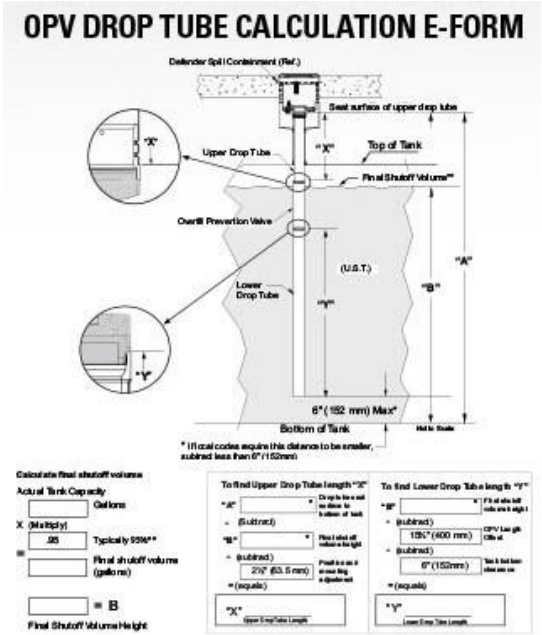
Common Overfill Alarms

Single-light overfill alarms can be triggered by multiple tanks, but which tank is in alarm?



Common Overfill Prevention Devices

Positive Shut-off Devices physically restrict the flow of fuel into the tank but are prone to mechanical failure or damage.



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Overfill Prevention Equipment Requirements

Installation of OPE is required pursuant to Health and Safety Code, division 20, chapter 6.7, sections 25290.1(f), 25290.2(e), 25291(c), and 25292(d) and California Code of Regulations, title 23, division 3, chapter 16 (UST Regulations), sections 2631(l), 2635(c) and (d), and 2665. OPE is not permitted to allow manual override and must be compatible with the substance stored in the UST. UST owners or operators must use at least one of the four OPE Performance Measures listed below.

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Overfill Prevention Equipment Performance Measures

1. Alert the transfer operator when the tank is 90 percent full by:
    a. restricting the flow into the tank; or
    b. triggering audible and visual alarms;

2. Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills;

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Overfill Prevention Equipment Performance Measures (cont'd)

3. Provide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or

4. Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling.

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Overfill Alarms

Overfill alarms required in OPE Performance Measures 1 and 2, are most often associated with automatic tank gauge (ATG) systems programmed to activate audible and visual alarms at a prescribed liquid level. Alarms may be used for any delivery type and are not affected by the action of other OPE that may be installed in the UST system.

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Overfill Alarms (cont'd)

Overfill alarms must be clearly visible and audible to the transfer operator at the tank fill point. Unlike other OPE methods, alarms do not restrict or stop the flow of product to the UST. Functionality of audible and visual alarms and the transfer operator's awareness of the alarms are the only factors preventing an overfill of the
UST.

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Overfill Alarms (cont'd)

For many commonly used ATG systems, when an overfill alarm is activated for one UST, additional overfill alarms for other tanks *will not activate if the alarm for the first tank has not yet cleared*. This effectively eliminates overfill protection for all but one tank if multiple tanks are filled at the same time. This condition must be reviewed by the service technician during installation, repair, and every 36-month overfill equipment inspections. UST.

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Overfill Alarms (cont'd)

Systems that only can activate external alarms when the first UST overfill condition occurs must be noted as failing the inspection and additional actions must be taken to ensure each UST has a functional overfill prevention independent of the other USTs at the facility (i.e., installing a separate alarm unit or other appropriate OPE equipment for each tank).

Summary of Findings

Multi-tank UST site owners and operators must employ either a common Overfill Alarm for the site, with individual Overfill Prevention Valves in each tank **OR** provide individualized Overfill Alarm Devices for each tank with straight drop tubes (no physical restriction).

Solutions

Overfill Prevention Valves with a Common Alarm

Most stations are equipped with a common alarm and mechanical OPE to physically restrict flow into the tank.

Mechanical OPE are prone to failure or damage, especially in tank environments where accelerated corrosion exists. Due to the gravity fuel delivery process, overfills may go unnoticed between equipment inspection/testing intervals.

Solutions

Individual Overfill Alarms

Adding additional overfill alarm devices to new or existing sites can be a costly proposition. The leading manufacturer's overfill alarm and acknowledgement switch combinations are approximately $1,700 MSRP per set and require additional electrical installation considerations.

Solutions

Individual Overfill Alarms (cont'd)

The **Delivery Defender** and **Delivery Defender Lite** from **OMNTEC Manufacturing** provides a unique solution to this complex problem.

Delivery Defender Series Advantages

- Far exceeds Federal and State requirements for Over Fill monitoring
- Confirms immediately an alarm condition is not active
- Confirms active communication between the ATG and Remote Alarm
- Provides an audio and independent visual alarm for each tank
- Rearms and ready to annunciate in case of additional alarms
- Easy and cost effective to install and test
- Great solution for a Belts and Suspenders approach
- Universal product / Seamless Integrates with standard ATGs
- Aids in reducing Cross Contamination

Delivery Defender Series Options

Delivery Defender Lite(DDL)

Delivery Defender (DD)

How the OMNTEC DDL MEETS LG150-3

- **Normal Operation**: Green light indicates system readiness(NO ALARMS / POWER & COMMUNICATION IS GOOD)
- **Delivery in Progress**: Amber light flashes when a drop starts(CONFIRMS COMMUNICATIONS THROUGH THE DROP)
- **High-Level Warning**: Red tank lights flashes when nearing overfill (INDEPENDENT LIGHT FOR EACH TANK)
- **Overfill Alarm**: Continuous Red light for each tank and silence-able audible horn that will re-alarm for each subsequent tank
- **Communication Loss Alerts**: Ensures constant system reliability

DDL Operation Video

How the OMNTEC DD MEETS LG150-3

- **Normal Operation**: Green light indicates system readiness(NO ALARMS / POWER & COMMUNICATION IS GOOD)
- **Delivery in Progress**: HMI Screen “zooms in” on tank being filled and Amber light flashes when a drop starts (CONFIRMS COMMUNICATIONS THROUGH THE DROP)
- **High-Level Warning**: Red tank lights flashes when nearing overfill (INDEPENDENT LIGHT FOR EACH TANK)
- **Overfill Alarm**: Red strobe light activates and affected tank is displayed on the HMI screen. Each subsequent tank will reactivate displayed alarm.
- **Communication Loss Alerts**: Ensures constant system reliability

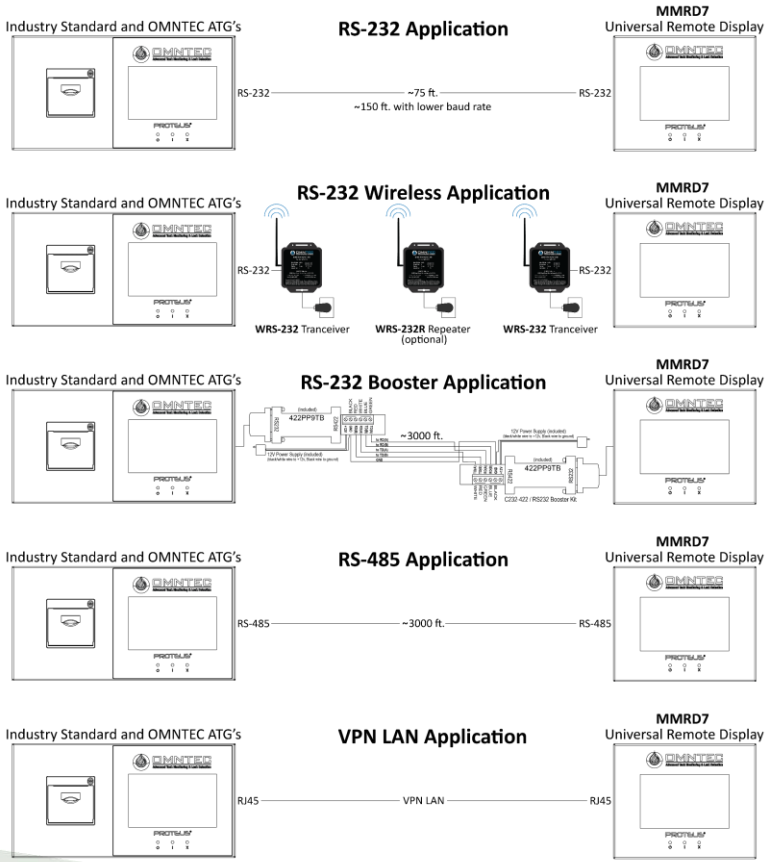
Mini-Me – A/B/C Operator's BFF

NEMA 4X Stainless Steel Version shown. Also available in indoor model.

- **Normal Operation**: Redundant display for ATG
- **Delivery in Progress**: Screen automatically cycles to tank actively being filled
- **Warning and Alarm Conditions**: Touch screen display shows real-time active alarm conditions with audible alert for level triggers (delivery needed, high, overfill, leak or theft alarms)
- **Communication Confirmation**: Ensures constant system reliability and ATG readiness

Mini-Me and Delivery Defender Video

Interface / Communications



Safety & Operational Benefits

- Universal interface to any ATG
- Rearms for secondary and tertiary ect… Alarms
- Has a visual alarm point for each tank
- Prevention of Overfills & Spills: Reduces environmental risks
- Minimization of Cross-Contamination: Product-specific alarms
- Enhanced Efficiency: Clear, real-time status updates for delivery personnel
- Regulatory Compliance Assurance: Helps meet California mandates

Comparison to Traditional Systems

Feature	OMNTEC DDL/DD	Traditional Overfill Alarms
Individual Product Alarms	Yes/Yes	No (aggregate alarms)
Re-Arms	Yes/Yes	No
Multi-Tank Monitoring	Yes/Yes	Limited
Real-Time Visual/Audible Alerts	Yes/Yes	Partial
Self-Test Capability	Yes/Yes	No
Wireless Option	Yes/Yes	No

Conclusions & Key Takeaways

- OMNTEC DD / DDL / MINI-ME enhances safety, compliance, and efficiency
- Provides real-time, individualized product alarms
- Supports California regulatory compliance with precision
- Scalable solution for fueling facilities

Any Questions?

OMNTEC

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