

API Recommended Practice 1007
**Loading and Unloading
of MC 306/DOT 406
Cargo Tank Motor Vehicles**

First Edition

Reaffirmed, February 2011



Loading and Unloading of MC 306/DOT 406 Cargo Tank Motor Vehicles

API RECOMMENDED PRACTICE 1007
FIRST EDITION, MARCH 2001

REAFFIRMED, FEBRUARY 2011



AMERICAN PETROLEUM INSTITUTE

SPECIAL NOTES

API publications necessarily address problems of a general nature. With respect to particular circumstances, local, state, and federal laws and regulations should be reviewed.

API is not undertaking to meet the duties of employers, manufacturers, or suppliers to warn and properly train and equip their employees, and others exposed, concerning health and safety risks and precautions, nor undertaking their obligations under local, state, or federal laws.

Information concerning safety and health risks and proper precautions with respect to particular materials and conditions should be obtained from the employer, the manufacturer or supplier of that material, or the material safety data sheet.

Nothing contained in any API publication is to be construed as granting any right, by implication or otherwise, for the manufacture, sale, or use of any method, apparatus, or product covered by letters patent. Neither should anything contained in the publication be construed as insuring anyone against liability for infringement of letters patent.

Generally, API standards are reviewed and revised, reaffirmed, or withdrawn at least every five years. Sometimes a one-time extension of up to two years will be added to this review cycle. This publication will no longer be in effect five years after its publication date as an operative API standard or, where an extension has been granted, upon republication. Status of the publication can be ascertained from the API Downstream Segment [telephone (202) 682-8000]. A catalog of API publications and materials is published annually and updated quarterly by API, 1220 L Street, N.W., Washington, D.C. 20005.

This document was produced under API standardization procedures that ensure appropriate notification and participation in the developmental process and is designated as an API standard. Questions concerning the interpretation of the content of this standard or comments and questions concerning the procedures under which this standard was developed should be directed in writing to the standardization manager, American Petroleum Institute, 1220 L Street, N.W., Washington, D.C. 20005. Requests for permission to reproduce or translate all or any part of the material published herein should also be addressed to the general manager.

API standards are published to facilitate the broad availability of proven, sound engineering and operating practices. These standards are not intended to obviate the need for applying sound engineering judgment regarding when and where these standards should be utilized. The formulation and publication of API standards is not intended in any way to inhibit anyone from using any other practices.

Any manufacturer marking equipment or materials in conformance with the marking requirements of an API standard is solely responsible for complying with all the applicable requirements of that standard. API does not represent, warrant, or guarantee that such products do in fact conform to the applicable API standard.

FORWARD

API publications may be used by anyone desiring to do so. Every effort has been made by the Institute to assure the accuracy and reliability of the data contained in them; however, the Institute makes no representation, warranty, or guarantee in connection with this publication and hereby expressly disclaims any liability or responsibility for loss or damage resulting from its use or for the violation of any federal, state, or municipal regulation with which this publication may conflict.

Suggested revisions are invited and should be submitted to the standardization manager, American Petroleum Institute, 1220 L Street, N.W., Washington, D.C. 20005.

All rights reserved. No part of this work may be reproduced, stored in a retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission from the publisher. Contact the Publisher, API Publishing Services, 1220 L Street, N.W., Washington, D.C. 20005.

Copyright © 2001 American Petroleum Institute

SECTION 1—SCOPE

1.1 Scope

Ensuring the safe and efficient loading and delivery of petroleum products to retail service stations and bulk facilities is the primary goal for all companies that transport product. This document is a guideline for use by the truck driver and persons responsible for the loading and unloading of MC306/DOT406 cargo tanks. It identifies specific steps to ensure that product can be loaded into tank trucks and unloaded into both underground and aboveground storage tanks in a safe and efficient manner that protects the environment. It is intended to be used in conjunction with existing driver training programs and procedures.

This document was prepared by a joint task force made up of representatives from the Petroleum Marketers Association of America, the National Association of Convenience Stores, the Society of Independent Gasoline Marketers of America, American

Petroleum Institute, U.S. Department of Transportation, and the National Tank Truck Carriers, Incorporated.

1.2 References

API

- | | |
|---------|---|
| RP 1637 | <i>Using the API Color-Symbol System to Mark Equipment and Vehicles for Product Identification at Service Stations and Distribution Terminals</i> |
| RP 2003 | <i>Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents</i> |

SECTION 2—BOTTOM LOADING TANK TRUCKS

2.1 Introduction

Tank truck vehicles can be safely loaded when all equipment is used properly and when the person responsible for loading follows prescribed safety procedures. The driver (or loader) should be alert, equipment should be properly maintained and safeguards against spillage, fire or product contamination should be rigidly observed.

In order to prevent product mixtures, the driver should be familiar with the color-coding used to identify loading and receiving equipment. For product color code, refer to API RP 1637, "Using the API Color-Symbol System to Mark Equipment & Vehicles for Product Identification at Service Stations and Distribution Terminals".

Note: Some loading facilities may utilize a color-coding system different from API RP 1637. The driver should check with the facility management to assure familiarity with the color-coding system used at each specific loading facility.

CAUTION: For switch-loading procedures (i.e., loading distillate when the prior product carried in the tank or compartment was gasoline or other flammable liquid), the driver (or loader) should

check with the terminal personnel or dispatcher for instructions. Also refer to API RP 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents.

2.2 Pre-loading Procedures

The driver (loader) should determine the product to be loaded into each tank truck and compartment. Note the compartment number on the shipping paper for reference when both loading and unloading. Shipping Papers must be handled in accordance with load rack procedures and must be completed and carried on the truck during transport to comply with U.S. Department of Transportation (DOT) regulations.

Check the cargo tank and compartments as to product(s) previously delivered and if necessary follow cleaning, flushing and drainage procedures in accordance with load rack procedures. In order to prevent product mixtures or spills due to overfilling of tank truck compartments and to ensure that correct quantities are loaded, all return gallons (retains) remaining in any

compartments from the previous delivery must be accounted for. If necessary to drain product from a compartment, park the tank truck and drain only in an approved area using an approved hose or bucket. Only a metal bucket that is properly bonded to the truck using an approved bonding cable, should be used, never a plastic bucket. Product should be disposed of in accordance with local operating procedures.

1. Before pulling under the load rack, drivers should stop at the stop line or 50 feet (15 meters) in front of the rack and inspect the loading area for product spills or any personnel or obstruction. Check adjacent loading lanes for problems. Turn off lights (daytime running lights, if so equipped, should be handled according to load rack procedures), electrical equipment and electronic devices, and all radios.

2. If the loading rack is not clear, set parking brakes and shut off engine. When the rack is clear, pull forward, spot truck for loading, set parking brakes, place transmission in lowest gear and shut off engine. Do not

use cellular phones under the rack or in any other unauthorized location.

3. Walk around the tank truck and conduct a visual inspection for hot or deflated tires, defective brakes, damaged springs, etc. Listen for air leaks in brake system, ensure product compartment identification dial (if so equipped), is set, and proper DOT placards are in place. This should be done either before or after pulling under the rack.

2.3 Loading

Drivers (loaders) should identify the location of the closest loading rack emergency shutdown control, portable fire extinguishers and, where provided, the fire blanket and the load rack fire suppression system. The driver (loader) should also know the location of the mechanical product flow shut-off valve and how to operate it if the main flow-control valve malfunctions. Tank trucks must not be left unattended at the load rack. Refer to terminal or company load rack procedures for Personal Protective Equipment (PPE) requirements while loading tank trucks.

1. Make sure that all tank truck valves are closed.
2. Connect the overfill protection plug/cord to the tank truck. Wait for green (or permission) light to illuminate before proceeding.
3. Check the vapor recovery hose for trapped liquid or other defects that would impede the free flow of vapors to the rack system. Connect the vapor recovery hose to the trailer. Completely close both camlock ears on the hose connector. A vapor-tight connection is required.
4. Be sure the brake interlock system is working.
5. Connect the bottom loading arm(s).
6. Open internal valves for the compartment(s) being loaded.
7. Set the number of gallons (liters) to be loaded on the meter set stop.

CAUTION: Under no circumstances should the overfill sensors be used as a meter stop. The pump's gradual slow down is controlled by the meter settings and use of the overfill sensors or other methods of shutting down product flow can result in a sudden shock to the product pumps, resulting in possible damage to pumps and piping.

8. Confirm that products are being loaded into the correct tank truck compartment(s), that the meter is

properly set for the compartment size and that no mixing of products occurs.

9. When starting product flow, check all hoses and connections for leaks or drips.

Stop loading immediately if leaks or drips occur. U.S. Environmental Protection Agency (EPA) regulations require the tank truck to be vapor-tight while loading. If vapors are determined to be escaping during the loading process, stop immediately, notify terminal personnel and your dispatcher/supervisor.

10. While vehicle is being loaded, driver (loader) must remain near the set-stop or, where provided, hold the dead man switch. Maintain observation of the loading at all times. Under no circumstances is the dead man switch to be strapped down or by-passed.

11. Precautions:

- Do not clean or make repairs to the vehicle while in the loading position.
- Shut truck tractor doors to prevent dome light from being activated.
- Only authorized personnel should be at the loading position.

- Do not use any electronic devices or cellular phones.
 - Distractions such as eating or drinking are prohibited.
 - Do not smoke except in designated areas.
- 12.** Never load tank truck vehicle compartments above their safe fill capacity.
- 13.** Monitor the meter closely during the loading process. Be prepared to push the stop button and the closest loading rack emergency shutdown control in case of meter overrun. Immediately report any meter overrun to terminal personnel.
- 14.** Overfill, Spill and Emergency Situations. In all situations identified below, immediately notify terminal personnel and dispatcher/supervisor.
- In an emergency, release dead man switch or push rack emergency shutdown button or, if necessary, activate the load rack fire suppression system.
 - In the event of a spill or compartment overfill, do not start or move the vehicle until the spill or overfill is cleaned up. If a significant spill occurs, leave the area and alert other drivers.
 - In the event of a fire, activate the load rack fire suppression system, leave the area and alert other drivers.
 - If the previous shutdown steps do not stop the flow, the driver should activate the mechanical shut-off valve, as described in Section 2.3, “Loading”.
- 15.** Once a tank truck compartment is filled, first close all internal valves, then disconnect the loading arm and secure the unloading coupler. Verify that proper product and quantities were loaded.
- 16.** Repeat process for each tank truck compartment being filled. (Section 2.3, “Loading”, Steps 5- 15)
- 17.** When all loading is complete, disconnect the vapor recovery hose.
- 18.** Disconnect the overfill protection plug/cord and replace the protective cap or, if used, disconnect the bonding cable.
- 19.** Look down the sides of the truck for obstructions and ensure personnel have vacated the area. Make sure all loading equipment is returned to its proper position. Check the loading area and adjacent lanes for problems before leaving. If the vehicle cannot be safely driven or

cannot be moved from under the rack, it should be towed away and repairs done at least 50 feet (15 meters) from the loading rack.

20. Do not turn on any electronic equipment/electrical devices, except the ignition, until the tank truck is at least 50 feet (15 meters) from the rack.

SECTION 3—TOP-LOADING TANK TRUCKS

3.1 Introduction

Tank truck vehicles can be safely loaded when all equipment is used properly and when the person responsible for loading follows prescribed safety procedures. The driver (or loader) should be alert, equipment should be properly maintained and safeguards against spillage, fire or product contamination should be rigidly observed.

In order to prevent product mixtures, the driver should be familiar with the color-coding used to identify loading and receiving equipment. For product color code should refer to API RP1637, "Using the API Color-Symbol System to Mark Equipment & Vehicles for Product Identification at Service Stations and Distribution Terminals".

Note: Some loading facilities may utilize a color-coding system different from API RP1637. The driver should check with the facility management to assure familiarity with the color-coding system used at each specific loading facility.

CAUTION: During switch loading (i.e., loading distillate when the prior product was gasoline or other flammable liquid) the potential for a fire or explosion is greater for top loading as compared to bottom loading, due to the potential for static generation from splash filling. For switch-loading procedures, check with the terminal personnel or dispatcher for instructions. Refer to API RP 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents.

3.2 Pre-loading Procedures (Refer To Section 2.2, "Pre-loading Procedures")

Most of the steps for top loading are the same as bottom loading, as presented in Section 2.2, "Pre-Loading Procedures" (paragraphs 1-3) & Section 2.3, "Loading", specifically. Follow those steps before continuing.

1. Make sure that the loading rack bridging gangway is out of the way before pulling under the rack. When positioning the truck under the rack, park the tank close enough to the rack so that the gangway can be lowered and rest against the top of the tank.

CAUTION: Do not attempt to walk out onto the gangway if it does not rest solidly against the tank. Never attempt to step on the rounded area of the tank.

2. Before starting to load:

- Make sure the tank truck compartments can contain the amount of product scheduled for loading,
- Make sure all unloading valves are closed,
- Open only the dome cover for the tank truck compartment being filled,
- Keep all other dome covers closed.

3.3 Loading

Most of the steps for top loading are the same as bottom loading, as presented in Section 2.3, “Loading”, Steps 7–14. Follow those steps before continuing:

1. Connect the overfill protection plug/cord, where provided, to the tank truck. Wait for the green (or permission) light to illuminate before proceeding. If grounding is not provided through the overfill protection system, the truck must be bonded to the load rack before opening any dome cover. Do not attach to fend-

ers, skirting, any painted surface or parts separated from the tank.

2. Open only the dome cover of the compartment to be loaded.

3. Make sure loading spouts are completely inserted into each tank truck compartment with the bottom of the spout as close as possible to the bottom of the compartment. Spouts should be as vertical as possible. Secure or hold down the loading arm to maintain constant contact with the manway to assure a bond during loading. Start loading at slow speed until the bottom of the loading spout is submerged. Stay by the meters/emergency shutdown switch at all times during the loading process. Where provided, hold the dead man switch. Avoid inhaling vapors. Keep upwind of the manway. Do not lower head into compartment.

4. Remove the loading arm by lifting it up slowly in a vertical position. Close dome cover and proceed to the next tank truck compartment following the same procedures.

5. When loading is completed, make sure all dome covers are properly closed. Detach the grounding cable and over-fill protection plug/cord (if so equipped). Ensure all equipment has been returned to proper position before leaving the rack area.

6. Keep all safety valves closed at all times except while unloading or draining.

CAUTION: Before exiting the rack, make sure the loading rack bridging gangway is raised off of the tank truck and placed in a safe position. Check all clearances before exiting.

SECTION 4—UNLOADING TANK TRUCKS TO UNDERGROUND STORAGE TANKS

4.1 Introduction

When maneuvering to enter and exit a customer location to deliver petroleum products, all clearances should be checked. Drivers should use extreme caution, paying particular attention to clearances to fixed objects, and remaining aware of the potential for other vehicles to move unexpectedly. Be particularly observant of the immediate area when backing the tank truck. It may be advisable to get out of the truck and check the rear for obstacles or place traffic cones to mark a path, before backing the truck. Maneuvering in close quarters, particularly backing up, presents an increased risk of accidents.

1. Vapors are ignitable when mixed with air in the proper proportions and a source of ignition is present. Therefore, all sources of vapors and ignition must be controlled or eliminated before or during unloading. There are several potential sources of vapors during unloading, including, but not limited to: vents, spills, leaks, hose rupture, customer spill at dispenser island or

receiving tank overflow. Sources of ignition include, but are not limited to, smoking, open lights, heaters or fires, running engines, fans or electrical equipment. Ensure a fire extinguisher is readily available at the unloading area and in good working order. If unsafe conditions such as leaks or concentration of vapors or sources of ignition occur during unloading, stop immediately and do not resume unloading until these hazards are controlled or eliminated and spills are cleaned up.

2. Preventing product spills or overflows is one of a driver's most important responsibilities when unloading. Even small spills or drips have the potential for severe environmental consequences, as well as creating an unsafe situation. It is recommended that a fully equipped spill kit be readily accessible and used by the driver to provide "first aid" containment in the event of a small spill or leak.

3. US DOT regulations and state fire codes require that drivers remain within 25 feet (8 meters) and have an unobstructed view of the cargo tank. If for any reason

the driver has to leave the immediate unloading area, the driver must shut down the entire operation, close all openings to the tank and return all hoses to the proper storage areas.

4.2 Spotting the Vehicle

Drivers should pay special attention to people and both parked and moving vehicles when moving the tank truck at the customer's location.

Drivers should also pay attention to avoid obstacles such as canopies, building overhangs, guard posts/rails, pumps, trash dumpster, etc.

1. The delivery tank truck should, if possible, be spotted on level grade and 25 feet (8 meters) upwind from any vent that emits vapors. The tank truck should not be parked or left standing near a building or in a depressed or enclosed area that will trap vapors or collect liquids, which are ignitable.
2. The driver should apply the parking brake, place transmission in lowest gear and place wheel chocks, if

provided, to prevent accidental movement. The driver should turn off engine and remove the keys from the truck.

4.3 Before Unloading

Some tank trucks are equipped with unloading valves on both the curbside and the street side of the tank truck. Unloading fittings should not be kicked or thrown from one side of the tank truck to the other as this will damage the edges and cause leaks. Drivers should:

1. Check for hot brakes and then strategically place no smoking signs and/or traffic cones around the tank truck and the unloading area to warn vehicles and pedestrians from entering the delivery area.
2. Check the area within a 10 foot radius of each fill box for possible sources of ignition (i.e. smoking, open lights, heaters or fires, other running engines, fans or other electrical equipment). Allow no sources of ignition and do not allow anyone to smoke in the vicinity of unloading.

3. Verify you are at the correct customer location. Correctly identify the product designation of each receiving tank, using the color coding or the product nametag.

Note: Some unloading locations may utilize a color-coding or other system different from API RP 1637. The driver should check with the customer or service station management to assure familiarity with the color-coding or other system used.]

4. Check the delivery information card (if available) for pertinent information. Identify and gauge the receiving tanks and calculate outage to be certain there is ample room to safely receive the delivery without danger of overfill. Gauging may be either manual or electronic (using the tank monitoring system). If gauged manually, the inventory must be calculated using the correct conversion charts. In addition, prior to 'sticking' the tank, ensure the measuring device used is not damaged or worn to the extent that an inaccurate reading would be obtained. If tanks are manifolded, gauge each receiving tank prior to delivering into each tank.

CAUTION: Keep all storage receiving tanks capped when not gauging or delivering product. It is critical to replace the direct fill pipe

cap when delivering product through the remote fill pipe. Not replacing the tank caps will make overfill float-ball valves inoperable.

5. Record the amount of product in each of the receiving tanks, in accordance with local procedures. Review your loading tickets to assure that product and tank truck compartment information is correct and to ensure that each grade of product will be properly unloaded into the correct receiving tank.

6. Check for liquid or debris in the spill bucket (e.g., fill wells), and drain/clean as necessary.

4.4 Unloading

1. Connect the vapor recovery (V.R.) system to the receiving tank (if the location is so equipped), in accordance with company procedures, before beginning to unload product.

2. The vapor recovery system shall be the first piece of equipment connected and the last piece of equipment disconnected. If there is a problem with the receiving tank's vapor recovery system that causes it to be unusable, contact the dispatcher or terminal manager before

continuing. If the customer location is not equipped with vapor recovery, remove the dust cap from the tank truck vapor-inlet-line to prevent a vacuum from being created in the tank truck while unloading.

3. Connect the unloading hose(s). Always start at the receiving tank and work back to the tank truck. When connecting the camlocks close both ears completely as a vapor tight connection is required. Connect the delivery hose to the tank truck ensuring that the fitting is clean, that the connections seat properly and are tight.

4. Double-check to be sure the truck tank compartment and the receiving tank contain the same product.

5. Begin unloading by opening the internal valve (if so equipped, check the sight glass for the proper product color). Then open the openable adapter. Remain in the immediate unloading area within 25 feet (8 meters) and have an unobstructed view of and access to the control valves and hoses/fittings until the delivery is completed and the hoses are replaced on the truck.

6. Check hoses and connections for any leaks or drips during delivery.

7. While unloading, as each tank truck compartment is emptied, turn the product/compartment identification dial (if so equipped) to "empty". Check the sight glass (if so equipped) to be sure the tank truck compartment is empty before disconnecting the delivery hose. Check the air safety valve pressure gauge (if the tank truck is equipped with air safeties) to be sure the valve did not close before the tank truck compartment was emptied. Close the delivery valve.

8. When it is necessary to change a delivery hose from one receiving tank to another, follow these steps in order:

- a.** Check the sight glass (if equipped) to be sure product has stopped flowing.
- b.** Walk hose empty, while still connected.
- c.** Close the discharge valve (i.e., openable adapter).
- d.** Disconnect the delivery hose at the truck tank end and "roll" it to the receiving tank to be sure it is completely drained.
- e.** Move the vapor recovery hose/fitting to the next receiving tank, if appropriate.

- f.** Move the delivery hose/fitting to the next receiving tank.
 - g.** Reconnect the delivery hose to the proper tank truck compartment.
 - h.** Double-check to be sure the truck compartment and the receiving tank contain the same product.
- 9.** When unloading is complete, disconnect and drain the unloading hoses, using the proper hose handling procedures. Take care not to drop the hose ends or couplings on the pavement.
- 10.** Close all internal valves and openable adapters and replace all dust caps.
- 11.** If company policy requires, gauge each receiving tank and accurately record the measurements. If available, use the computerized Automated Tank Gauging (ATG) system to verify measurements. If company policy requires, manifolded receiving tanks must be gauged after the full delivery has been completed.
- 12.** Uncouple the vapor recovery hoses in sequence per company procedure. Return all equipment to storage and check that the area is clear of product. Check for liquid in the spill buckets (e.g., fill wells), and depress the drain plunger, if so equipped, to drain the product.
- 13.** Be certain that tank caps have been securely replaced on customer receiving tanks and spill buckets (e.g., fill wells).
- 14.** If a spill or release occurs during delivery operations, drivers shall immediately follow company notification, spill cleanup and reporting procedures.
- 15.** Complete applicable notification form(s) for any customer equipment requiring repairs or replacement.
- 16.** Walk around the tank truck and conduct a visual inspection for hot or deflated tires, defective brakes, damaged springs, etc. Listen for air leaks in brake system.
- 17.** If backing maneuver must be made, make it immediately after walking around the vehicle. In high-traffic areas, consider using the safety cones or asking for assistance to maintain a clear backing area. Collect the safety cones and place them on the truck before leaving the customer location.

SECTION 5—UNLOADING TANK TRUCKS TO ABOVEGROUND STORAGE TANKS AND TO ABOVEGROUND STORAGE TANKS LOCATED WITHIN VAULTS (PITS) OR WITHIN DIKES OR WALLS

5.1 Introduction

Aboveground storage tanks (AST) may be situated in various locations, depending on the regulations of the jurisdiction where the tank is located. One or more aboveground storage tanks may be located outside, in the open, at ground level and at specified distances from buildings and sources of ignition. Aboveground tanks may be located at ground level (or elevated) within diked or walled areas or special enclosures. Aboveground tanks may also be located below the ground level in vaults, or pits. All of these create unique situations and potential hazards that the driver must take into consideration in order to make a safe delivery.

1. All clearances should be checked when maneuvering to enter and exit a customer location to deliver petroleum products into aboveground tanks, tanks enclosed in dikes, walls or special enclosures and tanks in vaults,

or pits. Drivers should use extreme caution, paying particular attention to clearances to fixed objects, and remaining aware of the potential for other vehicles to move unexpectedly. Be particularly observant of the immediate area when backing the tank truck. It may be advisable to get out of the truck and check the rear for obstacles or place traffic cones to mark a path, before backing the truck. Maneuvering in close quarters, particularly backing, presents an increased risk of accidents.

2. Vapors are ignitable when mixed with air in the proper proportions and a source of ignition is present. Therefore, all sources of vapors and ignition must be controlled or eliminated before or during unloading. There are several potential sources of vapors during delivery, including, but not limited to: vents, spills, leaks, hose rupture, customer spill at dispenser island or receiving tank overflow. Sources of ignition include, but

are not limited to, smoking, open lights, heaters or fires, running engines, fans or electrical equipment. Ensure a fire extinguisher is readily available at the unloading area and in good working order. If unsafe conditions such as leaks or concentration of vapors or sources of ignition occur during unloading, stop immediately until these hazards are controlled or eliminated.

3. Preventing product spills or overflows is one of a driver's most important responsibilities when unloading. Even small spills or drips have the potential for severe environmental consequences, as well as creating an unsafe situation, especially in enclosed areas. It is recommended that a fully equipped spill kit be readily accessible and is used by the driver in the event a spill or leak occurs on the ground outside the vault, pit or tank enclosure.

4. US DOT regulations and state fire codes require that drivers remain within 25 feet (8 meters) of and have an unobstructed view of the cargo tank. If for any reason the driver has to leave the immediate unloading area, the driver must shut down the entire operation, close all

openings to the tank and return all hoses to the proper storage areas.

5.2 Spotting the Vehicle

Drivers should pay special attention to personnel and vehicles, both parked and moving to control potential hazards and prevent interruption of delivery. Drivers should also pay attention to avoid obstacles such as canopies, building overhangs, guard posts/rails, pumps, trash dumpster, etc., when moving the tank truck at the customer's location.

1. The delivery tank truck should, if possible, be spotted on level grade and 25 feet (8 meters) upwind from any vent that emits vapors. The tank truck should not be parked or left standing near a building or in a depressed or enclosed area that will trap vapors or liquids, which are ignitable.

2. The driver should apply the parking brake, place transmission in lowest gear and place wheel chocks, if provided, to prevent accidental movement. Place the transmission in the lowest gear if the power take off

(PTO) pump will not be used. Turn off all unnecessary lights and electronic devices. Turn off the ignition. Even if the truck's engine will be used to pump off the product, excessive idle time will be eliminated by shutting off the truck and restarting it when after preparing to begin pumping. If PTO is not to be used, turn off engine and remove keys.

5.3 Before Unloading

Some tank trucks are equipped with unloading valves on both the curbside and the street side of the tank truck. Unloading fittings should not be kicked or thrown from one side of the tank truck to the other as this will damage the edges and cause leaks. Drivers should:

1. Check for hot brakes and then strategically place no smoking signs and/or traffic cones around the tank truck and the unloading area to warn vehicles and pedestrians from entering the delivery area.

2. Check the area for possible sources of ignition (i.e. smoking, open lights, heaters or fires, other running engines, fans or electrical equipment). Allow no sources of ignition and do not allow anyone to smoke in the vicinity of unloading.

3. Verify you are at the correct customer location. Correctly identify the product designation of each receiving tank, using the color coding or the product nametag.

Note: Some unloading locations may utilize a color-coding or other system different from API 1637. The driver should check with the customer or service station management to assure familiarity with the color-coding or other system used.

4. Be sure the receiving tank(s) will hold the full load. Ask consignee, when available, the following questions:

- Will the receiving tank hold the entire quantity to be unloaded?
- Is the receiving tank vented?
- Are the valves open?
- How do you dispose of residue?

If the consignee is not available, and you are required to manually gauge the receiving tank(s), be sure to calculate the inventory using the correct conversion charts to be certain there is ample outage to safely receive the delivery without danger of spillage or overflow.

5. Use extreme caution if required to climb over dikes or walls, into vaults or pits and onto the tops of above-ground tanks. See Caution. The driver must decide whether these are safe to climb. Use caution when walking on dikes or walls or around pits and vaults particularly if they are wet or icy. If climbing is necessary, maintain 3 points of contact with the ladder.

CAUTION: Aboveground storage tanks located in vaults, pits and enclosures shall be provided with filling connections and gauges located near ground level where they can be reached by the driver without having to enter into the vault, pit or enclosure. Drivers should be aware that vaults, pits and enclosures are considered to be confined spaces and entry may require permits and special precautions. Employers shall identify each aboveground tank located in a vault, pit or enclosure, determine whether or not the area around the tank should be classified as "permit required confined space" or "non-permit required confined space", and indicate this on the tank identification card. Drivers shall be trained and edu-

cated concerning confined space entry requirements and prohibitions, should entry into such spaces be required for gauging, sampling or spill cleanup.

5.4 Unloading

1. Whenever possible, drivers should use the customer's (consignee's) pump and follow their procedures.

Note: If the customer's procedures are not clear, drivers should contact the customer (consignee) or the dispatcher/supervisor for further instructions.

2. If drivers use the PTO pump on the tractor, the valves on the consignee's unloading lines must be set to bypass the pump, if present.

3. Close all valves not being used. Connect the bonding cable from the tank truck to the tank fill pipe or other bonding connection before beginning any other operations.

4. Connect the vapor recovery hose (if so equipped), closing both camlock ears completely, before unloading product. The vapor recovery system shall be the first piece of equipment connected and the last piece of equipment disconnected. If there is a problem with the

receiving tank's vapor recovery system that causes it to be unusable, contact the dispatcher or terminal manager before continuing. If the customer location is not equipped with vapor recovery, remove the dust cap from the tank truck vapor-inlet-line to prevent a vacuum from being created in the tank truck while unloading.

5. Connect a pressure hose to the aboveground storage tank fill connection, then to the pump outlet. Precautions should be taken to ensure the hose connection and locking devices are properly secured. Check for the presence of a check valve in the unloading line.

CAUTION: High-pressure hoses must be used on the pump discharge.

6. Connect the suction hose to the pump inlet, then to the tank truck compartment to be unloaded. Double check to assure that the truck tank compartment and the receiving tank contain the same product.

7. Open the safety valves and the valve on the tank truck compartment to be unloaded.

8. Start the engine (or customer's pump). Check all hose connections for tightness and ensure they are posi-

tioned without sharp bends. Hoses larger than two inches in diameter should be supported to prevent strain and/or flexing from vibration. Also make sure camlocks are secured with a flexible cord (for example, a tie-down strap) if the cam and groove coupler is not already equipped with a locking device such as a clip or an automatic lock.

9. Increase engine speed to the manufacturers specified fast idle setting for PTO operation (typically, 800-1000 rpm). Check hose connections and valves for leaks, and verify that product is flowing to the proper receiving tank. Make sure the vents are functioning properly on both the receiving tank and the truck tank. During the remainder of the unloading process, remain in the immediate unloading area within 25 feet (8 meters) and have an unobstructed view of and access to the hoses/fittings until delivery is completed and hoses are returned to the truck.

10. As each tank truck compartment is emptied, turn the product/compartment indicator dial to "empty," if so equipped. Check the sight glass (if equipped) to be sure product has stopped flowing. Check the air safety valve

pressure gauge, (if so equipped) to be sure the valve did not close before the tank truck compartment emptied. Drain the suction line into the pump. Disengage the PTO, and move the hose to the next tank truck compartment (if necessary).

11. When pumping is finished the driver should walk the suction hose to the pump. Walk the pressure hose to the AST fill connection and shut AST fill connection valve. Disengage the PTO and shut off engine. Disconnect suction line. Disconnect pressure line carefully, relieving the pressure, and cap the AST fill connection. Place any residual product into approved container.

12. Disconnect vapor recovery equipment (if present), and then disconnect the ground cable. Return all equipment to storage. Replace the dust cap on the vapor recovery connection

13. If company policy requires, drivers should gauge each receiving tank and accurately record the measurements. If available, use the computerized system to

verify measurements. If company policy requires, manifolded receiving tanks must be gauged after the full delivery has been completed.

14. If a spill or release occurs during delivery operations, drivers shall immediately follow company notification, spill cleanup and reporting procedures.

15. Complete applicable notification form(s) for any customer (consignee) equipment requiring repairs or replacement.

16. Walk around the tank truck and conduct a visual inspection for hot or defective tires, defective brakes, damaged springs, etc. Listen for air leaks in the brake system.

17. If a backing maneuver must be made, make it immediately after walking around the vehicle. In high-traffic areas, consider using the safety cones or asking for assistance to maintain a clear backing area. Collect the safety cones and place them on the truck before leaving the customer location.

American Petroleum Institute

1220 L Street, NW

Washington, DC 20005-4070

USA

Additional copies of this publication are available through Global Engineering Documents.

Mail Orders: API Publications
Global Engineering Documents
15 Inverness Way East
M/S C303B
Englewood, CO 80112-5776
USA

Telephone Orders: 1-800-854-7179 (Toll-free in the U.S. and Canada)
303-397-7956 (Local and International)

Fax Orders: 303-397-2740

Online Orders: www.global.ihs.com

Product Number: A10071