

**ERMA New Zealand  
PO Box 131  
Wellington**

**Code of Practice for  
Filling of Below Ground Petrol Tanks  
by Pumping**

**Approved Code of Practice  
Under the Hazardous Substances and New  
Organisms (HSNO) Act 1996**

**Code of Practice  
Date of Approval:**

**HSNOCOP 14-1  
December 2006**

## **Preface**

This Code of Practice (No. HSNOCOP 14-1) is approved pursuant to Sections 78 and 79 of the Hazardous Substances and New Organisms Act. The Environmental Risk Management Authority has delegated the power to approve codes of practice to the Chief Executive of the Authority, and this Code of Practice is approved in accordance with that delegation. It is confirmed that the requirements of Sections 78 and 79 have been met.

Approval of the code is limited to those matters in the document that relate to legislative requirements under the HSNO Act and controls set under the Act.

This code has been developed by the Environmental Risk Management Authority in accordance with clause 35A(b) of Schedule 8 to the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended). It sets out alternative means of compliance to the requirements for the filling of below ground stationary tanks with class 3.1A or 3.1B hazardous liquids by gravity stipulated in clause 35A.

ERMA New Zealand would like to thank Federated Farmers of NZ (Inc), Horticulture New Zealand, the oil industry and oil distributors for their assistance in developing this Code of Practice

The publication date in the Gazette for the Notice of Approval of this Code of Practice is 21<sup>st</sup> December 2006.

Pursuant to Section 80 (1) (a) of the Act, a copy of the code may be inspected at the Wellington office of ERMA New Zealand.

Pursuant to Section 80 (1) (b) of the Act, a copy of the code is available to be downloaded from the ERMA New Zealand website: [www.ermanz.govt.nz](http://www.ermanz.govt.nz).

Approved this 19<sup>th</sup> day of December 2006.

Rob Forlong  
**Chief Executive**  
**ERMA New Zealand**

# **1 Purpose**

The purpose of this Code of Practice for the Filling of Below Ground Petrol Tanks by Pumping is to enable compliance with the requirements of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended) for this activity.

This Code provides a means of compliance with the requirements of clause 35A (b) of Schedule 8 to the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended).

# **2 Scope of This Code**

This Code of Practice provides a process for the operation of filling below ground petrol stationary tanks by pumping. This filling activity has been undertaken in various forms. This code has been prepared to provide a consistent process for pump filling of such tanks. It provides for an alternative means of filling small underground tanks to that stipulated in clause 35A of the Transfer Notice, which is by gravity.

This Code of Practice is limited to below ground stationary tanks with a maximum capacity of 5000 litres.

Compliance with this Code does not obviate the requirement to comply with other sections of the HSNO legislation (or related regulations) or other legislation such as the Health and Safety in Employment Act 1992 and the Resource Management Act 1991.

# **3 The HSNO Act and the Place of Codes of Practice**

The HSNO regulations are largely performance based, that is, they specify a desired outcome without necessarily prescribing how to achieve it. They do not require that a single specific means be used to comply with any regulation and this allows for variations in method used for compliance.

The HSNO Act provides for Codes of Practice approved by the Authority to identify acceptable solutions to comply with the specified regulatory requirements. An Approved Code of Practice provides users with a method of meeting the control requirements with a degree of prescription.

In addition, specific provisions of the HSNO regulations and Gazetted Transfer Notices permit Codes of Practice to be approved by the Authority as alternatives to other specified requirements provided they can be shown to provide an equivalent level of safe management.

## 4 Conditions for Safe Filling

Filling of belowground tanks with petrol by pumping must comply with the conditions as set out below:

- 4.1 **Prior to Commencing Filling:** Before commencing the filling operation, the fundamentals of safety are to be verified. These include:
  - Exclusion of all sources of ignition from the area.
  - A prohibition of smoking in the area.
  - Ensuring that there is no electrical equipment or operating internal combustion engines in the area.
  - No moving traffic in the area
  
- 4.2 **Electrical continuity:** Electrical continuity must be achieved between the tank wagon and the belowground tank prior to the filling operation commencing and is to be maintained during the operation. This is to be achieved through:
  - Using delivery hoses that are electrically continuous and/or
  - Using a bonding cable.
  
- 4.3 **Liquid-tight and vapour-tight fill connections:** Liquid-tight and vapour-tight fill connections are to be maintained at all times whilst petrol is being delivered into the belowground tank. These are to be of one of the following types of connection systems:
  - 2" Whitworth threaded
  - 2" BSP threaded
  - 3" Whitworth threaded
  - 3" BSP threaded
  - 50mm camlock

The preferred connection on the underground tank is a 50mm male camlock fitting.
  
- 4.4 **Minimum Hose Diameter:** The delivery hose must have an internal diameter of not less than 32mm (1<sup>1</sup>/<sub>4</sub> inch).
  
- 4.5 **Fill point:** The fill point for any tank shall comply with the following features:
  - a vapour tight cap or cover shall be provided and this shall be kept in place except during the filling of the tank;

- it shall be readily accessible
- it shall be protected from accidental damage
- it shall be in the open air at least 3 metres from any opening into a building and at least 3 metres from any ignition source
- it shall be clearly identified as a fill point for a petrol tank.
- a fill pipe must be provided such that the petrol is carried through the pipe from the fill point to the bottom of the tank

4.6 **Vent pipes:** All below ground tanks must be fitted with a ventilating pipe that:

- Is of such a size as to prevent unsafe internal pressures developing
- Is not less than half the diameter of the filling pipe with a minimum size of 32mm internal diameter (other than as under section 4.6.2)
- Terminates in the open air in such a position that flammable vapours will not accumulate or travel to an unsafe location
- Terminates not less than 4 metres above the ground
- Terminates not less than 1.5 metres from any opening into a building
- If placed against a building, terminates not less than 1 metre above the building
- Terminates in view of the filling operator
- Is equipped with an antflash gauze of 500 microns nominal aperture size secured in such a manner as to allow removal for inspection and cleaning
- Terminates in a manner so as to prevent the entry of water and foreign material (eg. a return bend or a protective fitting)

4.6.1 The antflash gauzes on vent pipes are to be periodically checked for integrity and cleanliness.

4.6.2 For tanks installed prior to the date of approval of this Code of Practice a vent pipe of minimum diameter of 25mm is accepted provided the delivery flow rate is no greater than 200 litres per minute as per clause 4.7.

4.7 **Flow rates:** The maximum permissible flow rate for petrol into the belowground tank is not to exceed:

- **200 litres per minute for tanks fitted with a vent pipe of not less than 25mm internal diameter**
- **300 litres per minute for tanks fitted with a vent pipe of not less than 32mm internal diameter.**

4.8 **Contents Indicator:** The volume of fuel in the tank must be monitored. This may be through a dipstick calibrated for the tank being filled, with the maximum permitted filling level marked on the dipstick. The preferred

form of dipstick indicating system is one that complies with the following requirements:

- the dipstick must be constructed of a non-ferrous material;
- the tank opening for the dipstick must be provided with a cap. This shall be vapour tight and liquid tight and shall be kept in place, including during filling of the tank (unless the tank has a combined dip/fill point), except for when the tank contents are being checked;
- where a dipstick measures by contacting the bottom of the tank and is separate from the fill point, a tubular dipstick guide must be provided which incorporates a pressure equalizer hole which connects the upper end of the dip pipe with the upper tank space (this hole if over 1.5 mm diameter must be provided with an antflash gauze not coarser than 500 microns mesh).
- a durable striker pad shall be attached firmly to the tank bottom below the dip opening.

The delivery driver is to:

- take a dip reading of the stationary tank prior to commencing filling
- calculate the maximum volume that can be delivered into the tank to reach the safe fill level
- dispense the required quantity off the truck fill meter
- take a dip reading of the stationary container to confirm the quantity delivered.

In circumstances whereby the dipstick is not accurately calibrated for the tank or the foot of the dipstick is worn, the dip reading is an indication only for comparison with the metered volume.

- 4.9 **Tank Wagons:** Only tank wagons that comply with the requirements of the Hazardous Substances (Tank Wagons and Transportable Containers) Regulations 2004 are to be used for pumped deliveries.

## 5 CHECK LIST

This check list is to be completed by the fuel supply company representative or delivery driver and agreed by tank owner/user.

1. Suitable liquid tight and vapour tight fill point present for connection to tank wagon? Yes/No
2. Vapour/liquid tight cap provided for fill point? Yes/No
3. Fill point readily accessible? Yes/No
4. Fill point protected from accidental damage? Yes/No
5. Fill point in open air and at least 3 metres from any opening into a building? Yes/No
6. Fill point at least 3 metres from any ignition source? Yes/No
7. Fill point clearly identified for the tank/contents it relates to? Yes/No
8. Is vent pipe of sufficient diameter? Yes/No
9. Is the vent pipe clear and of a design to prevent the ingress of water and foreign material? Yes/No
10. Does the vent pipe terminate in the open air in a safe location? Yes/No  
> 4m above the ground? > 2m from any opening to a building?
11. Does the vent pipe terminate in view of the filling operator? Yes/No
12. Calibrated dipstick provided? Yes/No
13. Dipstick constructed of non-ferrous material? Yes/No
14. Is there a fill pipe which extends to the bottom of the tank? Yes/No
15. Is there a connection point to enable electrical continuity with the delivery tank wagon. Yes/No
16. Allowable maximum fill rate of tank?  
< 200 L/Minute? < 300 L/Minute?

Points 1 to 15 above must be met or remedial action agreed with the owner of the stationary tank.