

## 1. OBJECTIVE

This code of practice has been prepared as a statement, both of policy and of specific measures to be taken, to ensure safe and efficient storage of petroleum products in underground tank systems, with special regard for the highest levels of protection for people, property, and the environment.

The code has been jointly prepared by:

Explosives and Dangerous Goods Division, Department of Labour  
Ministry for the Environment  
BP Oil New Zealand Limited  
Caltex Oil (N.Z.) Limited  
Mobil Oil New Zealand Limited  
Shell Oil New Zealand Limited.

The code is intended to be read in conjunction with, and to complement, the Dangerous Goods Act and Regulations. It does not replace or supersede the requirements of the Act or the Regulations but provides guidance on how they can be met, and at the same time the environment can be protected from the potential hazards of petroleum product leakage. It is not intended to be used as a technical specification. It must be supported by detailed technical documentation to obtain approval for any project work from a licensing authority.

## 2. SUMMARY

The handling of petroleum products has always involved risk. The hazardous nature of the products handled and the serious potential consequences of system failure have required the oil industry to become highly accomplished in the management of this risk to a level at which the probability of system failure is acceptably remote.

One of the first principles in handling hydrocarbon fuels is to keep the product within the system. The primary concern is to engineer and operate the system to ensure that at all times the product is contained. The consequences of system failure may then be regarded as the result of exceptional circumstances rather than a hazard associated with normal operation.

This code of practice has been prepared in response to concern over the integrity of Underground Petroleum Storage Systems (UPSS) and reflects collective experience and expertise in risk management.

The UPSS is to be engineered, installed and operated so that the possibility of product release into the ground is minimised by:

- A high standard of engineering and installation reflecting currently available and proven technology.
- The application of regular detailed inventory control so that any product loss will be detected at the earliest stage.
- Prompt physical leak detection.
- Immediate and appropriate response to product release.

Specifically, the above is to be accomplished by:

- Careful selection of materials used.
- Corrosion protection of steel tanks and pipework.
- Overfill protection.
- Spill containment for the fill points of tanks.
- Strict supervision and control of installation standards and procedures.
- Use of approved contractors.
- Inventory control records maintained on-site and available for inspection.
- Verification of system integrity:
  - ◆ at manufacture, by tank testing;
  - ◆ during installation, by tank and line testing; and
  - ◆ during operation, by tank and line testing and by regular confirmation of satisfactory operation of any special systems installed.

### 3. INTRODUCTION

Increased concern over the potential incidence and effect on the environment of leakage from UPSS, principally at service stations and consumer premises, has led to a review of the engineering, equipment, installation and operating procedures associated with these facilities.

This code of practice is the result of that review. The code defines requirements for the storage of hydrocarbon products underground, and states specifically and in detail how these facilities and the individual items therein shall be designed, fabricated, installed and commissioned.

The code will be reviewed from time to time as the requirements of society change and available technology improves. Such reviews should be undertaken at least every five years by the representatives of all those who have contributed to its preparation.

## 4. PURPOSE

To ensure that the possibility of a product release from a UPSS of sufficient magnitude to be hazardous to life, health, property or the environment is minimised.

To stipulate procedures equipment and construction details that must be followed in the design, installation and operation of underground petroleum storage systems by all owners, operators and installers of UPSS.

To ensure that high standards of engineering and installation practice are applied in all UPSS.

To provide UPSS that will store and dispense their contents in a safe, efficient, effective and workable manner.

## 5. SCOPE

This code of practice applies to all underground petroleum storage systems where hydrocarbon products (such as automotive, aviation and industrial fuels, and non-toxic solvents) are stored underground in tanks.

All new storage systems shall be engineered and installed in accordance with this code.

All new and existing storage systems shall be operated in accordance with this code, and any alterations and additions shall meet all applicable requirements of it.

## 6. DEFINITIONS

For the purpose of this code, the definitions listed below shall apply.

### 6.1 **Applicable Regulations**

Regulations and/or by-laws that apply in the region, or municipality in which the storage system is to be installed, which apply to the work being carried out and to the equipment being installed in the course of the works.

### 6.2 **Approved**

Approved by the appropriate authority.

### 6.3 **Authority**

The authority having statutory control over, or obligation to control, a particular aspect of the works.