THE CLEANING AND ABANDONING, OR REMOVAL OF PETROLEUM SPIRIT STORAGE TANKS

1. A petroleum spirit storage tank may be deemed to continue in use so long as:-

   (a) it is licensed by the licensing authority and all conditions of the licence are observed, and

   (b) a liquid seal is maintained at the bottom of the tank filling pipe; provided that this requirement will not apply where the tank is temporarily emptied with the approval of the licensing authority for cleaning purposes.

2. Petroleum spirit storage tanks must be cleaned only by safe equipment which can be operated from outside the tank.

3. A petroleum spirit storage tank, the use of which is to be permanently discontinued, must be rendered safe without delay. The tank must be either removed or filled in solid with cement slurry or other approved materials (e.g. hydrophobic foam).

4. **There are three methods which may be adopted in connection with the removal of a petrol tank from the ground**.

   METHOD 1

   (a) All residual petrol must be removed from the tanks and all openings to the tank other than the vent pipes then securely closed or plugged.

   (b) One kilogram of 'dry ice' (solid carbon dioxide) for every 500 litres of the capacity of the tank must be crushed until individual pieces are no larger than the size of a golf ball and then dropped into the tank through a suitable opening. When this has been done, the opening used must again be securely closed or plugged so that the tank is vented only by means of its vent pipe.

   NOTE: 'Dry Ice' must not be allowed to come into contact with exposed parts of the body. Suitable gloves must be worn and while the ice is being crushed, it must be covered so as to prevent flying fragments.

   (c) The tank must be left for twelve hours after the addition of the 'dry ice' and the vent pipe must then be disconnected and the vent opening to the tank securely closed or plugged.

   (d) During the excavation operations a copious supply of water must be used to lessen the risk of any spark occurring. There must be no smoking or naked lights in proximity of the work.

(e) The words **'DANGER - PETROL TANK'** must be painted in clear and conspicuous letters at each end or on opposite sides of the tank, which must then be removed from the premises and taken to a secure place without delay.

(f) The licensing authority must be consulted before any work is commenced.

METHOD 2

NOTE: This method is NOT suitable if the tank is leaking.

(a) All residual petroleum spirit must be removed from each compartment of the tank and each compartment completely filled with water.

(b) The ventilating pipe must then be disconnected from each compartment of the tank and further water added until it flows through the ventilating hole.

(c) All openings to the tank including the ventilating opening must then be securely capped or plugged.

(d) The tank must remain in this condition while the work of excavation is in progress and during the excavation operations a copious supply of water must be used to lessen the risk of any spark occurring. There must be no smoking or naked lights in proximity to the work.

(e) When it is required to lift a tank from the excavation, it may be emptied of water provided that all openings to the tanks are immediately closed. (Refer to Section 8 regarding disposal of contaminated water).

(f) The words **'DANGER - PETROL TANK'** must be painted in clear and conspicuous letters at each end or on opposite sides of the tank which must then be removed from the premises and taken to a secure place without delay.

(g) The licensing authority must be consulted before any work is commenced.

METHOD 3

RG8 Hydrophobic Foam for Temporary Neutralisation and Tank Removal

(a) All residual petrol must be removed from the tank prior to the application of the foam product. The injection of the foam may then take place in accordance with the contractor's method statement, which must have prior approval from the Licensing Authority.

(b) During the excavation operations a copious supply of water must be used to lessen the risk of any spark occurring. There must be no smoking or naked lights in proximity of the work.

(c) The words **'DANGER - PETROL TANK'** must be painted in clear and conspicuous letters at each end or on opposite sides of the tank, which must then be removed from the premises and taken to a secure place without delay.

(d) The licensing authority must be consulted before any work is commenced.

5. **There are three methods which may be adopted in connection with the solid filling of a petrol tank**.

METHOD 1

(a) All residual petrol must be removed from the tank and then all openings to the tank, other than the vent pipe must be securely closed or plugged.

(b) One kilogram of 'dry ice' (solid carbon Dioxide) for every 500 litres of the capacity of the tank must be crushed until individual pieces are no larger than the size of a golf ball and then dropped into the tank through a suitable opening. When this has been done, the opening used must again be securely closed or plugged so that the tank is vented only by means of its vent pipe.

NOTE: 'Dry Ice' must not be allowed to come into contact with exposed parts of the body. Suitable gloves must be worn and while the ice is being crushed, it must be covered so as to prevent flying fragments.

(c) The tank must be left for at least twelve hours after the addition of the 'dry ice' before further work is commenced.

(d) The manhole cover of the tank may then be removed and the tanks completely filled with an approved material.

(e) The licensing authority must be consulted before any work is commenced.

METHOD 2

NOTE: This method is NOT suitable if the tank is leaking.

(a) All residual petroleum spirit must be removed from each compartment of the tank and each compartment filled with water.

(b) All pipes must then be disconnected from each compartment of the tank and further water added until it overflows.

(c) The water may then be removed from the tank and the tank then completely filled with an approved material. (Refer to Section 8 regarding disposal of contaminated water).

(d) The licensing authority must be consulted before any work is commenced.

METHOD 3

Permanently Filling the Tanks (RG22 Foam)

(a) If there are structural problems or other major removal difficulties the tank should be permanently filled with an inert material and left insitu. The preferred option is to fill underground storage tanks with RG22 urea formaldehyde foam. This is a non-toxic neutral (pH7), inert, stable (150+ years) and non-flammable material. Foam weighs only 25kg per 1,000 litres allowing the tank to be easily removed at a later date. The application company must be advised of the total ullage of each tank to be filled.

(b) The RG22 reference indicates the compressive strength of the foam, e.g. RG22 has an approximate strength of 22 Kgs/cm^2. A variety of high density foams of higher strength can be provided for demanding structural requirements. Currently, there is only one known contractor capable of undertaking this work:-

Tank Safe Limited Tel. Nos. 071-628-5695 or 4851
4th Floor, Bell Court House,
11 Blomsfield Street, London EC2M 7AY

(c) All suction and fill line connections to the tank manlid shall be disconnected and all securely capped. The tank manlid should remain firmly bolted to the tank. One suction or spare entry point should be left open to allow the foam injection. The vent line should remain insitu. If this has been damaged, a new vent shall be installed, direct from the manlid to a height of 5 metres and a flame arrestor fitted at the head.

(d) The application company must check the liquid level in the tank at the dip point and determine if the liquid is water or product. In any event the liquid should be treated by applying Marlopon AT50 petroleum emulsifier down the fill pipe at a rate of 0.5kg per cubic metre. Water should be added to the bottoms to ensure that the liquid level is above 100mm.

(e) All water and sludge to be then pumped out until the tank is bottomed, using an air or hand operated pump.

(f) These emulsified bottoms are classified as hazardous waste and cannot be disposed of through an interceptor. They shall be disposed of by a registered waste carrier by transportation to a licensed disposal site or incineration plant.

(g) The foam injector nozzle shall be securely clamped to the open suction position. This fixing shall be sealed to prevent the escape of hydrocarbon vapours.

(h) The foam injection equipment should be located up wind of the tank manhole and the tank vent. All equipment shall also be located to a minimum of 4 metres from the vent stack.

(i) Before commencement the foam quality shall be checked by injecting approximately 100 litres into a plastic bag. The foam must 'break' within 30 seconds of leaving the injector nozzle. 'Breaking' is recognised when a notch is made in the foam, with a sharp knife; the foam continues to split or break of its own accord. This quality check should be repeated at 10 minute intervals during the filling. A sample of foam from each location shall be taken by filling a one litre container from the side valve. The container shall be labelled as follows:-

(i) sample number
(ii) foam type
(iii) date
(iv) client
(v) location
(vi) signature and company/position

The sample shall be retained by Tanksafe Limited for one year and shall be made available on request.

(j) Foaming should continue until it emerges from the vent cap. The vent should be securely capped and foaming recommenced until a counter pressure of 0.5 bar is reached. This allows for hardening shrinkage. The manhole chamber shall be foam filled to within 200mm of surface level.

(k) The contractor shall issue a certificate detailing date, time, location, tank numbers, capacities and quantity of foam injected per tank.

(l) TankSafe Limited must issue a certificate stating:-

(i) date of tank filling
(ii) location name and address
(iii) owner of the site
(iv) number of tanks and their respective capacities
(v) quantity (in cubic meters) injected into each tank
(vi) a declaration that the neutralisation was performed in accordance with TankSafe Limited procedures, health and safety regulations and with the agreement of the local Petroleum Licensing Authority.

Copies of the above certificate shall be sent to the Local Licensing Authority, the Engineer and one copy retained by TankSafe Limited.

6. Concrete delivery certificates or equivalent certification must be supplied to the licensing authority on completion of the work.

7. Work on underground petroleum spirit storage tanks must only be carried out by qualified tank engineers.

8. Water used for the methods referred to above will be contaminated with petrol. Therefore, it should be removed from the filling station by a hazardous waste disposal specialist or disposed of through the petrol interceptor at the filling station provided that:-

(a) the capacity of the interceptor is adequate for the purpose;

(b) the interceptor is cleared of any petrol by a disposal specialist before the contaminated water is discharged into it;

(c) the discharge of contaminated water through the interceptor is monitored to ensure that undue turbulence does not occur;

(d) the pumping rate of the contaminated water from the tank is controlled as necessary;

(e) on completion, any petrol in the interceptor is removed by a disposal specialist;

(f) the necessary approval of the Water Authority is obtained.

9. Although permission to carry out work may have been obtained from the licensing authority, notification or authority to carry out work may also be required from other enforcement agencies such as the District Council Environmental Health Officer and the Health and Safety Executive.