

Fire Safety – Tank Bunds

Introduction

Tank bunds (also known as catchpits) are mainly used for containing spillages of flammable liquids stored within external holding tanks. Whilst applicable to the entire range of flammable solutions, bund walls are most commonly employed in connection with the storage of oils, heating fuels and diesel.

Tank bunds have traditionally been erected as a fire protection measure with the objective of achieving containment of the flammable liquid concerned which otherwise may discharge into a building where, if they become involved in a fire, may intensify or promote fire spread from one building to another via the flow of burning liquid.

Although this Risktopic focuses on the fire safety benefits of having a tank bund, bunds also have a major role to play within the realms of pollution control as containment of spillages or leaks will help to prevent ground or water pollution which could lead to prosecution by the Environment Agency.

Recommendations for a Tank Bund

Zurich recommends that tank bunds or catchpits for above ground storage tanks should be designed, constructed and maintained as follows:

- Above-ground storage tanks should be surrounded by a bund wall or catchpit capable of containing 110% capacity of the largest tank within the bund or 25% of their aggregate storage capacities, whichever is the greater.
- Bund walls should be constructed of brick, concrete or reinforced concrete or any other material which is impervious to the contents of the storage tank.
- The walls should not be higher than 1.5m and should be located at least 1m from the nearest tank within the bunded area. This ensures adequate stability, natural ventilation of the bunded area and avoids hindering fire fighting or means of escape from the bund.

- Where there is more than one tank in a single bunded area, intermediate walls up to half the height of the main bund, but less than 0.6m high, can be provided to contain any small spillages.
- Service pipes should be taken over the bund. Where this is not possible, all pipe penetrations in the bund structure should be effectively sealed against leakage using materials which provide at least 120 minutes of fire resistance.
- The ground beneath storage tanks should be concrete or otherwise made impervious to the contents of the storage tank.
- Arrangements should be made for accumulated rainwater and liquid spillages to be removed from the bund. For environmental reasons, traditional drain-off valves at the base of the bund are no longer acceptable and pumping arrangements are now required.
- A program of routine inspection should be adopted to ensure that the bunded area is kept clear.
- Tanks may be provided with an integral bund. The integral bund is generally not considered to be as effective as a separate bund, as a fracture of the outlet pipe, where it joins the tank, or the isolation valve, will result in an uncontained loss of the tank contents.
- To prevent unauthorised use or vandalism any pumps, taps or valves should be locked shut when not in use.

Summary

Tank bunds are an important feature as a fire protection measure as they are designed to contain spillages and prevent running liquid fires which can allow a fire to spread rapidly, making it more difficult for the Fire Brigade to extinguish. Protecting storage tanks with bunds also can also help with pollution control if they are built and maintained to the above recommendations.

Useful references

1. The Control of Pollution (Oil Storage) (England) Regulations 2001 and Water Environment (Oil Storage) (Scotland) Regulations 2006.
2. Environmental Agency (general enquiry line 08708 506 506 website www.environment-agency.gov.uk), the Scottish Protection Environment Agency - SEPA enquiry line 01738 448414 website www.sepa.org.)

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