

YOUR RESPONSIBILITIES

A SEPTIC TANK SYSTEM which does not work can pollute your neighbours' water or land, cause a nuisance or smell, and be a hazard to children and wildlife - with legal implications! Effluent is not out of sight, out of mind - it may appear on someone else's property and could be traceable. Don't forget, non-biodegradable items - such as plastics from nappies and sanitary items - don't decay.

As the owner, or occupier, of a property with a septic tank system you have a legal responsibility to ensure that it functions properly. Remember your Environmental Regulator* and Local Authority have the power to prosecute offenders and can serve notice to ensure that remedial action is taken to improve unsatisfactory systems. However, if you follow the DO and DON'T lists in this leaflet, you are unlikely to face such action. Your vigilance is vital. A responsible user should undertake regular inspections of the tank, drainage field and surrounding area.

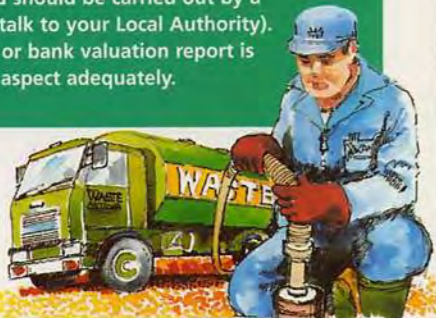
In addition, the discharge from your system may require a formal consent - your local Environmental Regulator will be able to advise you (for free advice in England and Wales phone 0645 333 111).

If you sell a property in England and Wales for which you hold a consent you should advise your Regulator within 21 days. If you do not, you will remain responsible for a discharge that you no longer control.

*In England and Wales the Environment Agency; in Scotland the Scottish Environment Protection Agency (01786 457 700); and in Northern Ireland the DoE (NI) Environment and Heritage Service (01232 254 754).

Purchasing a property

If you are considering buying a house with a septic tank system, ensure that the drainage field is inspected prior to signing contracts and ask the householder if a maintenance log is available. With new houses which have a warranty, make sure that it covers the system. With other properties, a site inspection which includes the inlet drainage, the tank and the drainage field should be carried out by a competent surveyor (talk to your Local Authority). Your building society or bank valuation report is unlikely to cover this aspect adequately.



DO

- ✓ Put all the wastewater from your home into the system - any of these waters may contain disease-causing germs or environmental pollutants - but not rainwater (from roofs, etc.).
- ✓ Use bleaches, disinfectants, sterilisers or germicides sparingly, as they could kill the bacteria which help digest the waste. Domestic cleaners are biodegradable and should not harm the tank in normal use.
- ✓ Inspect the system once a month, including water levels in the distribution chamber and the drainage field.
- ✓ Desludge the tank at least once a year.
- ✓ Act immediately if you find a blockage or any sign of pollution - do not allow effluent to collect on the ground surface.
- ✓ Keep records of inspections (e.g. water levels), desludging activities and any maintenance undertaken on permanent log sheets.
- ✓ Ensure that all covers can be secured, but removed when necessary.
- ✓ Ensure that air vents are not blocked.
- ✓ Ensure that the drainage field is protected - do not dig in it, drive over it, plant anything over or near it except grass, or cover it with a hard surface such as concrete or asphalt.

DON'T

- ✗ Use your toilet or kitchen sink as a rubbish bin - use compost bins where possible.
- ✗ Dispose of rags, nappies, sanitary items, plastic or other large solids - they will cause blockage and backing-up - 'Bag it and Bin it'.
- ✗ Pour paints, solvents, hazardous chemicals, pesticides, fats, oils or heavy grease and sump oil down the drain - these should be kept in their original containers and recycled.
- ✗ Empty chemical toilets into drains or septic tanks.
- ✗ Use caustic solutions to open blocked drains - use boiling water or drain rods instead.
- ✗ Allow rainwater to drain into the tank or surface water to flood the drainage field. Flooding will sweep solids through the tank and inhibit treatment in the drainage field.
- ✗ Ever enter a septic tank - toxic gases are produced by the natural treatment processes.



FURTHER ADVICE & EMERGENCIES

You are strongly advised to obtain operation and maintenance instructions for your system from the tank manufacturer or system installer.

If problems occur, you should contact the equipment supplier or the house builder - if you know who they are. You may also wish to contact the septic tank manufacturer, local desludging contractors, the Environmental Health Department of your Local Authority, or your Environmental Regulator.



PROJECT FUNDERS

This initiative was funded by the DoE, the Environment Agency, the Institute of Building Control, Klargester Environmental Engineering, NHBC, SNIFER and The National Trust. It was technically supported by Albion Concrete Products, the Centre for Alternative Technology, the Geological Survey of Ireland, Imperial College of Science, Technology and Medicine, the Royal Town Planning Institute and South Oxfordshire District Council.

The leaflet was prepared by Sián John, Research Manager, CIRIA, and designed by Norman Reynolds.

It is part of a series which also includes: On-site sewage disposal options, Septic tank systems: design and installation, and Septic tank systems: a regulator's guide. Copies can be obtained from the funding organisations and certain local authority offices.



THE NATIONAL TRUST



ENVIRONMENT AGENCY

Sniffer

SCOTLAND & NORTHERN IRELAND FORM FOR ENVIRONMENTAL RESEARCH



The Institute of BUILDING CONTROL



Klargester

CONSTRUCTION INDUSTRY RESEARCH AND INFORMATION ASSOCIATION
6 Storey's Gate, Westminster, London SW1P 3AU
E-mail: water@ciria.org.uk
Tel: 0171-222 8891

Fax: 0171-222 1708

SEPTIC TANK SYSTEMS

a user's guide

CIRIA

1



Do you have a septic tank system? Are you responsible for maintaining one? YES - then this leaflet is aimed at you. It provides essential information on how septic tank systems work, DOs and DON'Ts, and emergency advice.



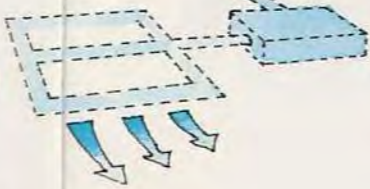
Septic tank systems are an effective, economical way of treating domestic effluent. They consist of two main components: a watertight, underground tank, into which raw sewage is fed, and (normally) a drainage field, to which wastewater is released.

Direct discharge from the tank to a ditch or watercourse should not occur (however, in Northern Ireland and Scotland, the use of a perforated pipe which drains to a waterway is allowed under certain conditions).

The **tank** provides suitable conditions for the settlement, storage and partial decomposition of solids. These need to be removed from time to time. The tank effluent can, however, still cause pollution and needs further treatment. The **drainage field** is critical for protecting the environment from pollution and removing potentially harmful impurities.



Septic tanks may be constructed of glass fibre, thermoplastics or precast concrete.



Septic tank systems are easy to operate and maintain. But remember they are living systems which will only perform well if treated well. If treated badly they can fail, resulting in foul odours, surface flooding, health risks, contamination of water sources and expense.

If you follow the simple rules outlined in this leaflet, you should have years of trouble-free, cost-effective operation and efficient wastewater treatment.

HOW IT WORKS

The primary purpose of the tank is to separate the solids from the liquids, as wastewater flows through it, and to help break down contaminants. There may be three layers in the tank:

- a scum layer of floating solids
- the liquid sewage from which solids are settled out
- a bottom sludge layer which is 'digested' to some extent by naturally occurring bacteria.

The wastewater passes from the tank to the drainage field, via a distribution/sampling chamber. The drainage field typically consists of a system of sub-surface perforated pipes or a soakaway, which allows the liquid to drain into the surrounding soil. To function properly, it relies on adequate soil drainage and good contact being maintained between the liquid, air and organisms in the subsoil, which break down and purify the effluent.

It is better to use a network of sub-surface perforated pipes, or alternatives such as constructed reed beds, rather than



soakaways. The former methods maximise contact with the soil, or plants, and aid the natural breakdown of the waste. But remember, septic tank systems will only operate properly if tanks are regularly and competently desludged.

MAINTENANCE

Septic tank systems are like people - they need periodic check-ups and proper care to remain healthy and function properly. A septic tank should be emptied once a year and checked regularly to see whether or not it needs desludging. If it is not periodically emptied too many solids will flow into the drainage field, eventually leading to clogging. If you make a little effort on a regular basis you will save money and significantly prolong the life of the system.

You will know the tank needs emptying too late if sludge levels are high, the drainage field floods, the drain backs-up, or it smells. A regular look at your system will help you learn how it works, but take care when you do so. A well run system will develop a surface crust, full of earthworms and will not be smelly! The drainage field should also be checked for sogginess or flooding - this indicates inadequate drainage or a clogged system.

When the tank is desludged, ensure the operator:

- pumps out all of the contents, including the sludge (a small crust may be left for reseeded - but no more)
- uses the access cover, not the inspection ports
- does not damage the internal pipework or breather vents
- leaves the inlet pipe clear and the covers in a safe condition.

When choosing a desludging contractor, check that the sludge will be disposed of responsibly and safely, preferably to the local sewage treatment works.

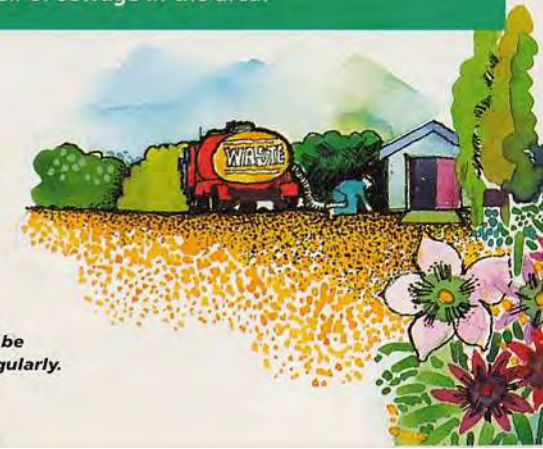
The underground drainage field is difficult to maintain. Once damaged or blocked often the only solution is to replace it - an expensive option! Prevention is better than cure - know where it is and protect it from surface damage and from becoming blocked by desludging your tank regularly.

If it does become faulty, it may be possible to replace it with a package plant (prefabricated treatment units), or reed bed. Effluent quality can in fact be improved by using these methods.



Indicators of problems with your system:

- slowly draining sinks, toilets, baths etc.
- tank covers lifted by overflowing solids
- backing-up of sewage at the inlet
- surface flooding "downstream" of the tank
- nettles and vigorous plant growth "downstream"
- ground movement near the tank or drainage field
- polluted water in ditch or watercourse
- a smell of sewage in the area!



Tanks must be emptied regularly.