BRITISH WATER

A GUIDE FOR USERS OF **PACKAGED WASTEWATER TREATMENT PLANTS**

BRITISH WATER WWTP FG GU-V 1.1-2020

Environment Agency

Cyfoeth Naturiol Cymru Natural Resources Wales

SEPA Scottish Environment Protection Agency

NIEA Northern Ireland Environment Agency

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THIS GUIDE HAS BEEN PRODUCED BY
THE BRITISH WATER **WASTEWATER TREATMENT PLANT FOCUS GROUP**

01. **SCOPE**

To **explain** to owners and users how Packaged Wastewater Treatment Plant works and why is important that they operate correctly

To **outline** how to use them (Do's and Don'ts) and how to maintain them (Servicing and Emptying) properly to avoid polluting the environment

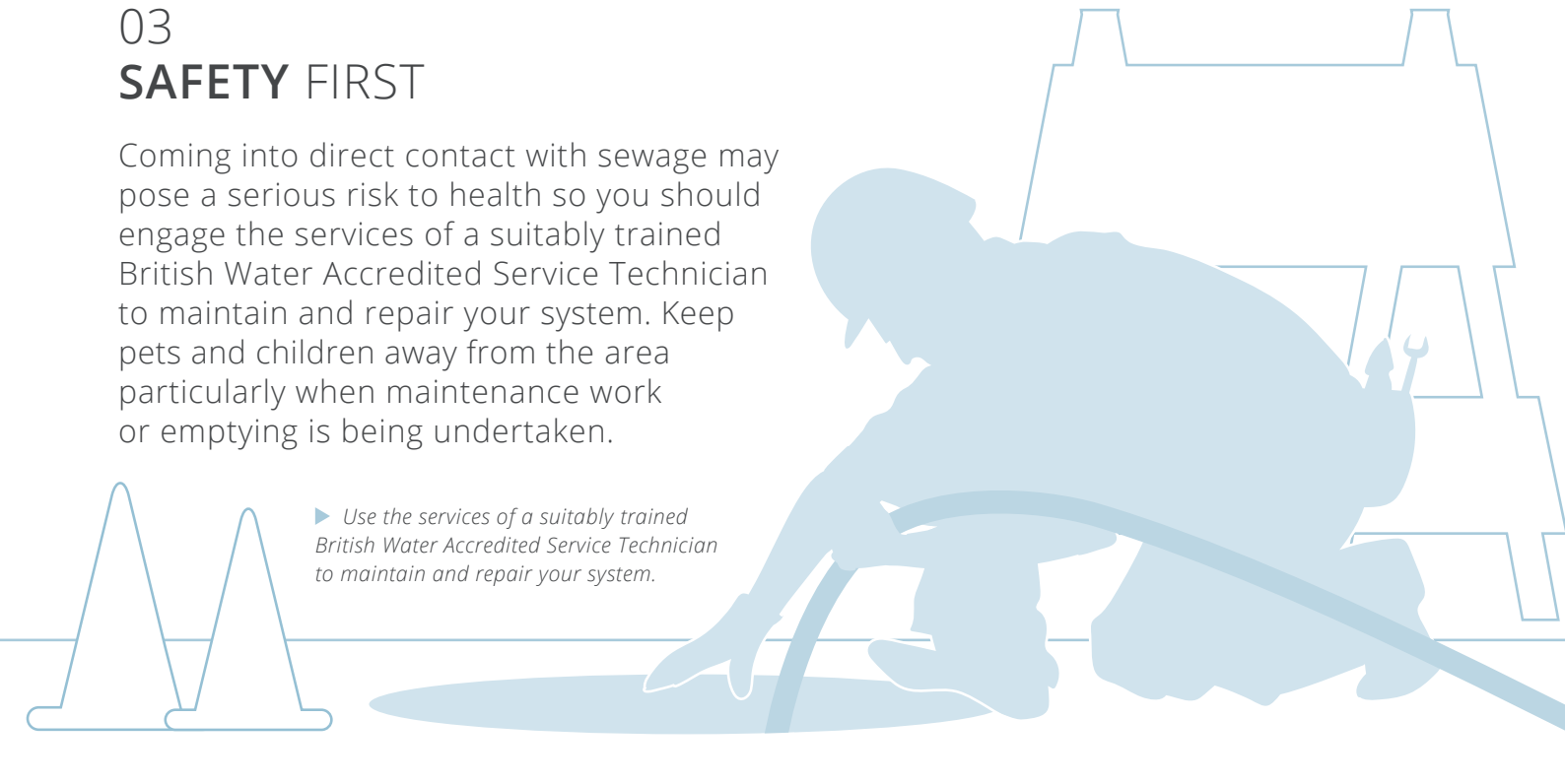
To **help** owners understand the duty they have under environmental regulatory standards and the regulatory landscape

02. **INTRODUCTION**

Few people stop to consider what happens to the wastewater/grey water and sewage that goes down the drain every time they take a shower/bath, do the washing up, use the washing machine or flush the toilet. In most households or commercial premises the sewage flows away through the sewers and is treated at a large-scale sewage treatment works. But if the premises/property is off mains, the drains lead instead to a Packaged Wastewater Treatment Plant usually located underground within the property's boundary.

03 **SAFETY** FIRST

Coming into direct contact with sewage may pose a serious risk to health so you should engage the services of a suitably trained British Water Accredited Service Technician to maintain and repair your system. Keep pets and children away from the area particularly when maintenance work or emptying is being undertaken.



▶ *Use the services of a suitably trained British Water Accredited Service Technician to maintain and repair your system.*

04. UNDERSTANDING YOUR **PACKAGED WASTEWATER TREATMENT PLANT**

Sewage is made up of the organic waste from toilets and the chemicals and wastewater and grey water from everyday activities such as washing, cleaning, cooking, clothes-washing and dishwashers. Packaged Wastewater Treatment Plant that are CE certified generally work along similar principles with primary, secondary and even tertiary treatment stages that produce a high quality (low/no pollution) effluent. In simple terms sewage enters the chamber underground where it is acted upon by naturally occurring bacteria which break down the sewage into a non-polluting output or discharge.

The key point to understand is that in order for the bacteria to grow and do its job, the environment in which it lives inside the treatment system needs to be 'friendly'. As that environment is made up of whatever you put down the toilet, sink or drains if you overload it - say with too much water in one go or with too many chemicals or harsh detergents - then the bacteria can suffer or even die.

This means the system will not be treating the effluent effectively, and consequently the discharge is unlikely to be meeting its required environmentally protective performance, and could be polluting the environment. Furthermore if the bacteria die, you will need to pay for the system to be reseeded. If the bacteria survive but are negatively impacted it can take days or even weeks for it to recover and function properly.

However, be assured that normal day to day cleaning – provided dosage recommendations are followed and only small quantities are used at a time should not have any adverse effect on the treatment system.

Follow the helpful guidance in this publication to help you avoid or at least minimise the introduction of 'un-friendly' products into the environment of your sewage treatment plant.

i This guide does not cover septic tanks, cesspools or cesspits.

05. PROTECTING YOUR **SEWAGE TREATMENT PLANT**

Follow these simple precautions to avoid damage that can lead to costly repairs:

DON'TS

- **Don't** plant trees near your treatment system as overtime the roots can penetrate the holding chamber causing sewage to leak out (pollution) and water to seep in (flood the system).
- **Don't** drive over sewage treatment plant covers or put heavy objects on top of them. They are not designed to bear weight.
- **Don't** park or drive over a drainage field as compacted ground will not drain effectively.
- **Don't** allow hot tubs, swimming pools or storm water from rainwater downpipes or gulleys to discharge into your treatment system as this will overload it.

06. REGULATORY **RESPONSIBILITY**

Owners have a duty to ensure their Packaged Wastewater Treatment Plant has been correctly installed and complies with building regulations and the environmental regulator's authorisations. The environmental regulators are the Environment Agency (EA) for England, the Scottish Environment Protection Agency (SEPA) for Scotland, Natural Resource Wales (NRW) for Wales and Northern Ireland Environment Agency (NIEA) for Northern Ireland.

Once installed and commissioned, owners have an ongoing duty to ensure treated effluent from the Packaged Wastewater Treatment Plant meets environmental regulatory standards (i.e. a specified discharge quality) and does not pollute the surrounding surface and groundwater. This is not an onerous duty as a correctly designed, installed and properly maintained system will help to provide a final effluent for discharging that meets these regulatory standards.

07. **MAINTENANCE** AND **SERVICING**

Packaged Wastewater Treatment Plants use electricity to power pumps which artificially introduce air into the treatment plant. This approach promotes the growth of aerobic bacteria which are more effective in breaking down the sewage and produce a higher quality effluent.

You will understand from this that a Packaged Wastewater Treatment Plant has both mechanical and electrical components that need to be checked, serviced and properly maintained to ensure optimum operation and longevity.

It is therefore essential to regularly maintain and service the plant. British Water and the environmental regulators recommend using companies with British Water Accredited Service Technicians as they have been trained and assessed to be competent in this specialist occupation.

SUMMARY

- Keep the system properly maintained with a service contract with a British Water Accredited Service Technician
- Provide clear access to the treatment plant for ease of maintenance
- Only flush the three P's down the toilet (paper, pee, poo) – nothing else!
- Tell children, visitors and guests about the 3 Ps

08.
DAILY **DO'S** AND **DON'TS**

A Packaged Wastewater Treatment Plant is not designed to cope with the following products and you should avoid putting these down your drains, sinks or toilets (this list is not exhaustive). It can have detrimental implications for the effectiveness of the treatment system and its discharge into the environment resulting in a potential pollution risk.

DO'S

- Washing machines produce the largest amount of wastewater that the treatment system has to deal with in a short space of time so spread machine washes across the week
- For similar reasons opt for daily showers rather than daily baths
- Use the most bio-degradable products you can find for house/car cleaning, clothes washing or washing up. Fortunately, these products are now offered in high street supermarkets
- Avoid over dosing of chemicals - read every product label and follow the manufacturer's dosage instructions for water type in your area and cleaning activity undertaken
- Spread household chores involving detergents/chemicals across the week so the plant is not overloaded with chemicals on any particular day
- Avoid chopping and changing cleaning products – given time the bacteria in the treatment system can learn to 'live with' a chemical product but this is less likely if products are frequently changed

DON'TS

- All non-biodegradable products including sanitary towels, tampons, disposable nappies, incontinence pads, baby wipes, wet wipes, face wipes, cotton wool, cotton pads and condoms
- Medicines (liquid or tablet)
- Mouthwash
- Fat/grease oil from cooking
- Garden chemicals, fertilizers or weed/pest killers
- Motor engine oils, anti-freeze, car cleaning liquids
- DIY products including solvents, paints, glue, white spirit, paint thinners
- Dairy waste, general food waste even if put through a waste disposal unit

TIP

Opt for products which are more environmentally friendly and follow the manufacturer's instructions on how to dispose of it responsibly.

i Even products labelled as flushable will not break-down (bio-degrade) and over time the buildup will clog up the system and even cause damage within the treatment plant.

09. HARD WATER, SOFT WATER AND SALT

Your local water authority can tell you if you are in a hard or soft water area. If you don't know who supplies your water, go to: **https://www.ofwat.gov.uk/households/your-water-company/map** for England and Wales. Scottish Water for Scotland and Northern Ireland Water for Northern Ireland.

Hardness is determined by the level of naturally occurring calcium and magnesium compounds in your water. High content means your water is hard, whereas low compound content indicates your water is soft. Salt can be used to soften water.

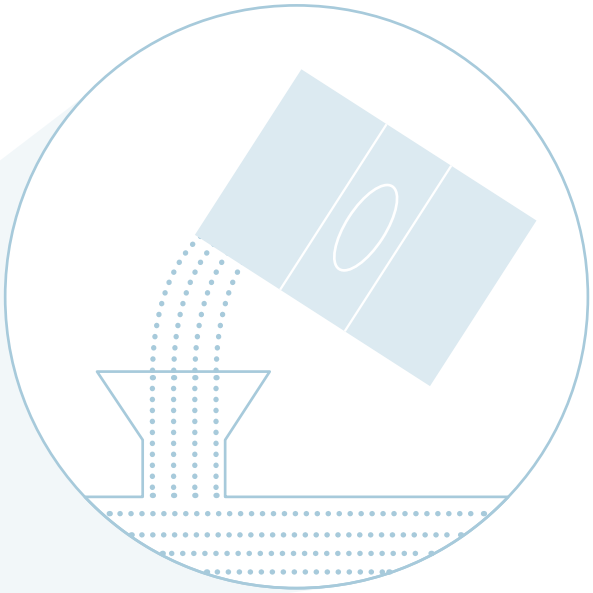
Detergents of all types work more effectively in soft water so less detergent is needed. Check laundry detergent and chemical product labels and stick to the correct dosage specified for the water type in your area so you are not loading the sewage treatment plant more than is necessary.

DISHWASHER PRODUCTS

If using a dishwasher, keep the salt dispenser topped up as it softens the water reducing the amount of dishwasher detergent needed to clean effectively. Opt for a liquid or loose powder option so you can more easily adjust the dosage to the water hardness/softness of your area. Use only the amount specified by the manufacturer.

WATER SOFTENING UNITS

If water softening equipment is correctly sized and installed and the treatment system is designed and sized correctly, with the knowledge that a water softener will discharge into it, then there should not be a problem. If you want to install a new plant, do be aware that domestic and commercial water softeners involve a salt regeneration process and salt in high concentrations can be harmful to biological treatment systems.

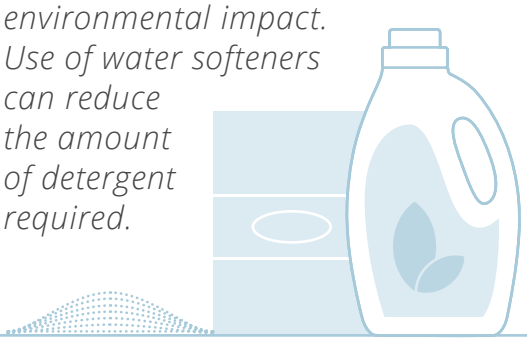


▲ *Keep your dishwasher salt dispenser topped with a liquid or loose powder to soften the water. Only use the amount specified by the manufacturer.*

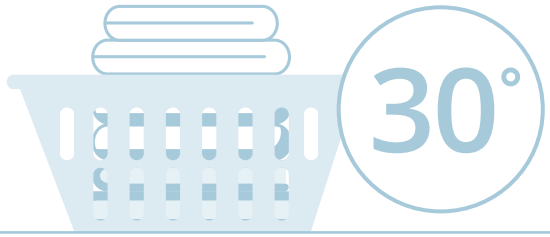
TIPS

LAUNDRY WASHING

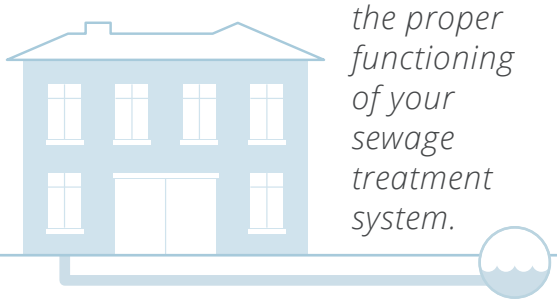
// *Opt for bio-degradable/low phosphate products. For normal "coloured" washes use a washing product without added bleach. For white washes add a separate bleach formulated to minimise its environmental impact. Use of water softeners can reduce the amount of detergent required.*



// *Only wash when you have a full load and/or make use of eco options on your machine. Normal wash temperatures, with the occasional very hot or "boil" wash, are fine but repeated boil washes will raise the plant temperature and adversely affect the bacterial process.*



// *In some larger specialist applications such as nursing homes or stables you should obtain expert advice from your installer and/or maintenance provider on the do's and don'ts to follow to maintain the proper functioning of your sewage treatment system.*



WASTE DISPOSAL UNITS

You are advised against using waste disposal units because the macerated vegetable wastes and other degradable organic material can add a considerable extra load to the treatment system. Opt instead for garden composting vegetable peelings (it is cheaper and more environmentally friendly) and disposing of cooked food waste and non-vegetable waste via your local council's food waste collection service where available.

SUMMARY

// Use bio-degradable or low phosphate products

// Use only as much product as you really need

// Spread washing/cleaning chores across the week

// Keep food waste out of your plant

▲ *The environmental regulator may sample the discharge from the system to check that it meets the required standards.*

10. **REGULATOR** CHECKS

Be aware that once your Packaged Wastewater Treatment Plant has been commissioned and is in operation, the environmental regulator may at any time and without notice sample the discharge from the system to check that it meets the required standards. The environmental regulator also has the right to review and vary the discharge requirements that it sets.

A correctly designed and installed Packaged Wastewater Treatment Plant will be able to meet the stringent standards set by the regulators. If your system is being maintained by a qualified British Water Accredited Service Technician then it is unlikely to fail its consents as the discharge will be sampled periodically so that any issues are picked early and quickly addressed. If your system does fail to meet the required discharge standard then you should act promptly. Contact a British Water Accredited Service Technician to remedy the problem so you avoid polluting and the associated enforcement actions.

OTHER **SOURCES OF INFORMATION**

1. British Water list of Accredited Service Engineers can be viewed at: https://www.britishwater.co.uk/directory/findengineer.aspx
2. Other British Water publications available at www.britishwater.co.uk are:
A. Code of Practice: Guide to the Installation of Sewage Treatment Systems
B. Code of Practice: Guide to Desludging Sewage Treatment Systems
C. Code of Practice: Flows and Loads 4
D: Code of Practice: Maintenance and Servicing by British Water Accredited Technicians

GLOSSARY:

Greywater: Water coming from your bathroom sinks, showers, tubs, and washing machines. It is not water that has come into contact with faeces, either from the toilet or from washing diapers.

CE marking: The letters 'CE' appear on many products traded on the extended Single Market in the European Economic Area (EEA). They signify that products sold in the EEA have been assessed to meet high safety, health, and environmental protection requirements.

Primary, secondary and even tertiary treatment: There are three main stages of the wastewater treatment process, known as primary (sedimentation), secondary (biological) and tertiary water treatment (mostly comprised of removing phosphates and nitrate).

Septic tanks: Septic tanks are chambers in the ground divided into smaller chambers. The compartments sort solid waste from liquid. The liquid is then allowed to enter the ground via a soakaway. (A soakaway is a pit dug into permeable ground filled with hardcore and usually covered with earth. Surface water or purified effluent from a sewage treatment plant is drained into this and percolates into the surrounding ground). These need to emptied occasionally to remove sludge but not as often as cesspools.

Cesspools/cesspits: A cesspool/cesspits is a single chamber in the ground storing sewage and wastewater until full. Once full, a contractor is employed to empty it.

THE ENVIRONMENTAL REGULATORS ARE:

Environment Agency (EA) in England

Natural Resources Wales (NRW)

Scottish Environment Protection Agency (SEPA)

Northern Ireland Environment Agency (NIEA)

Anyone who makes discharges to the environment, including sewage effluent, has a responsibility to ensure their discharge is not polluting and meets the requirements of the regulatory tool that applies to your discharge in your location. You should ensure your treatment system is well operated and maintained, and that a new or replacement system is correctly sited and installed.

Further information can be found by clicking on the environmental regulator logos, above, to access their websites.

Note: The environmental regulators the Environment Agency, Natural Resources Wales, the Scottish Environment Protection Agency and the Environment and Heritage Service (Northern Ireland) support the use of this code of practice, but the Agencies do not specifically endorse any particular manufacturer's product.

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