

Detailed guide: Storing silage, slurry and agricultural fuel oil

Updated: Link to PLANET replaced with one to MANNER NPK software.

You must follow these rules if you store silage, slurry or agricultural fuel oil.

You need to know the general rules that apply if you store any of the 3 substances, as well as specific rules for storing and handling each one.

If your farm is in a nitrate vulnerable zone (NVZ) there are [extra rules for storing organic manures](#). You can [check if your farm is in an NVZ](#).

General rules

Who's responsible

You're responsible for making sure you meet the rules if you control, manage or look after a farm or an installation on a property, eg as a:

- farmer or land manager
- tenant farmer – unless you can prove someone else, eg the leaseholder, is jointly or wholly responsible

You can be prosecuted and fined up to £5,000 in a magistrates' court, or get an unlimited fine in the Crown Court, if you don't follow the rules and take care to avoid causing pollution.

New storage and substantial changes

A new or substantially changed store must:

- follow the specific rules for the substance you're storing
- have an expected lifespan of at least 20 years with maintenance (any part of a silage effluent tank that's underground must last 20 years without maintenance)
- be at least 10 metres clear of inland or coastal waters – you may need a larger 'safety zone' in some cases, eg near a water supply intake

Although your store itself must be at least 10 metres clear of inland or coastal waters, drains and sealed pipes can be within 10 metres of these features if the Environment Agency agrees an exception. Ask for an exception when you tell the Environment Agency about your project.

'Substantial changes' usually means structural alterations, rather than minor repairs. [Check with the Environment Agency](#) if you're unsure.

Exempt storage

If your installation was built before March 1991, or a contract for construction was entered into before March 1991 and completed before September 1991, it's exempt from the rules for new stores. However, if you make substantial changes – for example structural changes, increasing capacity or relocating – your store is no longer exempt.

The Environment Agency can also serve a notice at any time requiring you to bring storage up to the current standards if it believes there's a significant risk of pollution.

Before you start work

It's up to you to decide what planning and work is needed but you must:

- tell the Environment Agency at least 14 days before you begin construction – you can also contact them for [advice on planning and building a store](#)
- make sure you don't pollute the surrounding environment – eg rivers or other watercourses
- check if you also need [planning permission](#)

Once your storage is built you must carry out maintenance to make sure there's no risk of pollution.

Tell the Environment Agency

You must notify the Environment Agency at least 14 days before you build new storage for silage, slurry or agricultural fuel oil, or make substantial changes to an existing store.

You must also tell the Environment Agency if you intend to make or store field silage or non-baled bags – there are [specific rules and a form](#).

Contact your local office

Call or write to [your local Environment Agency office](#).

Tell them:

- your name, address, telephone number and email address
- the type of store you're proposing to build or change
- the exact location of the site (8-figure [grid reference](#))

You'll need to supply the following when you contact the Environment Agency so they can assess your proposal:

- a site plan drawing of the structure
- a design drawing confirming the materials that will be used and their design, specification and layout – you may also be asked to confirm that your design meets the requirements of [BS 5502](#)
- if you plan to use prefabricated products, a copy of the manufacturer's specifications and guarantee
- if the structure is constructed from earth, analysis about the soil type, depth and permeability and a description of how it will be engineered
- for underground or partially underground silage effluent tanks you'll need a certification from the installer – you must provide this certification to the Environment Agency because the tank is required to perform for at least 20 years without maintenance.

You'll usually get a written assessment of your proposal that says whether it's been approved or not. The Environment Agency may contact you, rather than giving you a written assessment, to give you guidance on changes you need to make to your installation before it can be approved.

Silage

There are specific rules for making and storing silage.

The rules do not apply to silage you store temporarily in a container or trailer for transportation.

Where to store silage

You must not make or store any silage, or unwrap baled silage, within 10 metres of inland or coastal waters.

In addition you must not store field silage within 50 metres of a 'protected water supply source'. This is any place where water is abstracted (taken) for any of the following purposes:

- human consumption
- use in farm dairies
- human food preparation

Ask the [Environment Agency](#) about protected water sources or [use the 'What's in my backyard?' map](#) to check your local area.

Silos

All parts of a silo must be resistant to attack. Your silo must have:

- an impermeable base extending beyond any walls
- impermeable drainage collection channels around the outside, flowing into an effluent tank

The base must comply with:

- [British Standard 8007:1987](#) and [British Standard 8110-1:1997](#) (for concrete bases)
- [British Standard 594/EN 13108-4:2006](#) (for hot-rolled asphalt bases)

If your silo has walls, they must withstand wall loadings set in [British Standard 5502-22:2003+A1:2013](#)..

Ask your manufacturer, or check the manual that came with your equipment, to find out if it meets these British Standards.

Effluent tanks

Your silo must have an effluent collection system.

If all parts of an effluent tank are above ground, the tank must be constructed to resist attack from silage effluent for at least 20 years with maintenance. If any part is below ground, it should be impermeable for at least 20 years without maintenance. You'll be asked to prove your tank is suitable, for example with a manufacturer's guarantee.

You can store silage effluent and slurry together if your tank has enough capacity and is built to withstand both types of effluent. However, mixing slurry can give off gases that are lethal to humans and livestock, and you must never put silage effluent into an under-floor slurry store.

Capacity

The minimum capacity rules for effluent tanks should give you at least 2 days' storage at peak flow. However, it's up to you to ensure you've enough capacity to avoid the risk of pollution.

Silo capacity

Minimum effluent tank capacity

Up to 1,500 cubic metres 20 litres for each cubic metre

Over 1,500 cubic metres 30 cubic metres, plus 6.7 litres for each cubic metre of silo capacity over 1,500 cubic metres

Baled silage

Baled silage must be sealed in an impermeable membrane or bagged. It doesn't need a specially constructed base, but you must make sure any silage stored directly on the ground cannot leak into a water source.

Baled silage must be kept at least 10 metres clear of inland or coastal waters.

Field silage and non-baled bags

For silage to be stored as 'field silage' there must be no construction works, for example walls or earth banks, and topsoil must not be disturbed.

If you make field silage or non-baled bags, you must:

- choose a suitable site – for example if you store silage in a non-baled bag in your farmyard, you must make sure you can contain any drainage
- notify your local Environment Agency office at least 14 days before you first use the site

Notify the Environment Agency

Use form [WQE4](#) to tell the Environment Agency if you intend to [make or store field silage](#). Give at least 14 days' notice.

Send the completed form to [your local Environment Office](#).

Slurry

There are specific rules when you make and store slurry, including in earth-banked stores.

Run-off from solid manure stores, woodchip, or straw-bedded corrals or stand-off pads counts as slurry. You must collect and store it either separately or in your main slurry store.

The rules do not apply to slurry you store temporarily in a container or trailer for transportation.

Where to store slurry

You must not site slurry storage tanks, effluent tanks, channels or reception pits within 10 metres of inland or coastal waters without written agreement from the Environment Agency.

All slurry stores

Slurry tanks, reception pits, pipes and channels must be impermeable and meet the anti-corrosion standards set in [British Standard 5502-50:1993+A2:2010](#). They should last for at least 20 years with maintenance.

The base and walls of your slurry tank and any reception pit must withstand the wall loadings set in the standard.

You're responsible for making sure your storage and maintenance complies with the rules – get professional advice if you need it.

Capacity

When calculating the required capacity of your steel or concrete store, you'll need to include a minimum of 300 millimetres of freeboard. For earth-banked stores you'll need a minimum of 750 millimetres, and you must maintain this freeboard during use. Freeboard is the vertical distance between the crest of your tank or lagoon and the slurry surface.

You'll normally need capacity for at least 4 months' slurry storage. What

this means for you will depend on how much slurry you use, the size of your tanks and expected rainfall.

Use [MANNER NPK](#) to work out your average winter rainfall (November to February). Add an extra 25% to your calculation to take account of wetter than average winters.

If you're in an area with above average rainfall, you'll need more capacity. Speak to the Environment Agency or a consultant if you're unsure how much you'll need.

If you operate with less than 4 months' capacity, the Environment Agency may refuse your proposal or ask you to prove that it's sufficient and to explain the steps you've taken to protect the environment.

Any temporary storage facilities you have – such as a reception pit – must be large enough to store a minimum of 2 days' combined slurry production and likely rainfall.

Drainage pipes

If your slurry tank, effluent tank or reception pit is fitted with a drainage pipe, it must have 2 valves separated by a least 1 metre. Each valve must be able to shut off the flow of slurry and be locked when not in use.

The exception to this rule is if your slurry storage tank drains through the pipe into another tank at the same level, or of equal or greater capacity.

Earth-banked slurry stores

An earth-banked store must have impermeable soil to a thickness of at least 1 metre. You may need laboratory analysis and confirmation from a civil engineer to be sure your soil is suitable. Alternatively you can import impermeable soil or use a synthetic liner.

The permeability of your compacted soil must be less than 1×10^{-9} metres per second (0.000001 mm per second).

Testing should be to [BS 1377-6:1990](#) or to [BS EN 1997-2:2007](#).

Weeping-wall stores

The base of a weeping-wall store must extend beyond its walls and include perimeter drains to catch escaped slurry and drain into an effluent tank.

Spreading slurry

Your irrigation system must not deposit slurry within 10 metres of inland freshwater or 50 metres of any water supply. You must assess the risk of direct run-off from land you intend to irrigate, and identify unsuitable

areas.

Agricultural fuel oil

You must follow these rules if you both:

- build a new agricultural fuel oil store or make substantial changes to an existing one
- store over 1,500 litres of agricultural fuel oil on your farm

[Other rules may apply](#) if you store fuel oil:

- for domestic purposes
- for another business you run from your farm
- in a tanker temporarily for transportation on roads or around your farm
- in mobile browsers or drums temporarily stored alongside mobile plant

Wherever fuel oil is stored on your land you're responsible for taking precautions to prevent and contain spillages – for example by fitting an alarm to alert you to overfilling.

Where to store fuel oil

You can store fuel oil in one location or spread across your farm. It must be stored in a tank or drum that meets [ISO 9000](#). (Check the manual that came with your tank or drum, or ask the manufacturer.)

No part of your installation can be within 10 metres of inland or coastal waters – including yard drains, dry ditches and land drains.

If tanks are underground, they must also follow the Defra [Groundwater Protection Code](#).

Secondary containment

A tank or drum must be surrounded by a secondary containment structure or 'bund'.

The bund must:

- have a life-expectancy of at least 20 years with maintenance
- be impermeable to oil and water (walls and base), with no drain-down pipe
- contain every part of the tank, with taps and valves directed down and locked shut when not in use
- contain delivery pipes that are permanently attached to the primary tank, which must be fitted with self-closing taps or valves and locked inside when not in use

If you buy a combined storage tank and bund system you must make sure it will meet the regulations when in use.

You must [dispose of any waste fuel oil](#) or mix of oil and water that collects in the bund without causing pollution.

Bund capacity

The required capacity of a bund depends on your type of storage.

| Type of storage | Minimum capacity of bund |
|-------------------------|--|
| Single tank | 110% capacity of the tank |
| Multiple tanks | 110% of the capacity of the largest tank or 25% of the total volume that could be stored in all tanks in the area – whichever is greater |
| Other storage – eg drum | At least 25% of the total volume that could be stored at any time |

If you're served a notice

The Environment Agency can 'serve a notice' to stop you using an unsuitable silage, slurry or agricultural fuel oil store until it's improved or relocated. They'll do this if they think there's a significant risk of pollution – for example if you've not allowed enough capacity to store slurry.

You'll have at least 28 days to carry out the work. You may be allowed more time, for example if you need planning permission or the weather is unsuitable.

How to appeal

If you disagree with the notice, you can appeal. You have 28 days from the day after the notice was served.

Appeal in writing to the Secretary of State.

The Secretary of State for the Environment and Rural Affairs

The Planning Inspectorate

Room 4/19 Eagle Wing

Temple Quay House

2 The Square

Temple Quay

Bristol BS1 6PN

Send a copy to your Environment Agency office at the address on the notice.

Your letter must explain why you're appealing. Include:

- a copy of the notice
- any related correspondence
- a plan of your farm, showing the installation and any watercourses or drains

If you're acting for a farmer on whom the notice was served, you'll also need a statement from them confirming this.

Decisions on appeals

The notice could be:

- withdrawn or changed
- upheld, with extra time for you to comply
- upheld, with no extra time to comply – the compliance period will then usually end on the day this decision is made

Legislation

These rules are based on the Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations – known as the 'SSAFO' regulations – and related legislation.

Further Information

[Livestock manure and silage storage infrastructure for agriculture](#)