

SCOUTING SKILLS

WASTE DISPOSAL AT CAMP



0845 300 1818

Item Code FS[draft] Jun/09 Edition no 0

Introduction

Proper and efficient waste disposal at camp is critical for hygiene, legal compliance, pleasant enjoyment of camp and the opportunity to camp again on the same site.

Camping has changed a lot, and modern camping involves greater reliance on packed items, advanced fuels, electrical items, and disposable objects. Disposing of those wastes in an environment of strict waste legislation and extreme pressure on high density campsites requires leaders and Scouts to think ahead and modify their behaviour as regards waste disposal.

You may only want to arrange a small camp, or you may be arranging a major international event. Both have specific waste disposal requirements for Leaders to consider.

The First Rule of Waste

The first rule of waste is "do not make waste". By planning ahead you can minimize the waste you create at camp. You can buy without excess packing, or unpack before leaving for camp. You can avoid taking things that will need to become or create waste. You can plan your catering to minimize waste and uneaten food or trimmings. If you do not make waste, you do not have to dispose of it at camp.

This is doubly so of wastewater (also known as 'grey water') – the less water you use, the less you have to dispose of.

Types of Waste at Camp

Camping generates many sorts of waste, each of which has specific disposal needs, and each of which carries with it costs and risks that can be mitigated by sensible forward planning, camp operations and personal behaviours. Some of the main types of waste are given in the attached table (table 1) with the related UK disposal requirements.

Of particular risk at camp are two things:

1. **Detergents** – these are highly toxic to water life, and have long lives in the soil, as well as creating visible contamination. Use the minimum possible and wherever available, use biodegradable or low environmental impact detergents.
2. **Fats and greases** – these create a trap for other contaminants, are unsightly and rapidly provide a breeding ground for noxious bacteria and vermin. Minimise the use of oils and fats at camp when cooking, and plan diets and cooking methods appropriately.

Risks of failing to dispose of waste

Failure to dispose of waste at camp brings with it several significant risks. These include legal risks, hygiene risks, accident risks and fire hazards.

There are specific legal risks, which while often 'observed in the breach', are relevant and could become an issue at larger camps or organized events.

The hygiene related risks include disease, unpleasant odours, spillage and leakage that contaminates the site chemically or biologically, and the attraction of potentially serious pests and vermin.

Accident risks can arise from sharp edges, glass or chemical content in waste, aside from the basic trip hazard or 'clutter factor'.

Waste presents a significant fire hazard at camp, especially paper and plastic waste near a cooking area.

Legal Framework

There are now several main areas of European and national legislation impacting on waste management. We cannot address here other international and European initiatives which either directly impact on waste or set the context within which waste policies are developed, such as:

- global commitments (for example the Kyoto Protocol on Climate Change)
- European commitments (for example the Sixth Environment Action Programme for the European Community)

The current national controls on waste originate from the Control of Pollution Act 1974 and were greatly tightened with the introduction of the Environmental Protection Act 1990. Legislation originally focused on the disposal of waste, but since the introduction of the EC Framework Directive on waste (see below) control has extended to include the storage, treatment, recycling and transport of waste.

Most UK legislation impacting on waste management is now implemented as a result of European Directives. The European Union's waste legislation comprises three main elements:

1. horizontal legislation, establishing the overall framework for the management of wastes, including definitions and principles
2. legislation on treatment operations, such as landfill or incineration, which may set technical standards for the operation of waste facilities
3. legislation on specific waste streams, such as waste oil or batteries, which may include for example measures to increase recycling or to reduce hazardousness

There are a significant number of Directives affecting waste management, including some which may not immediately appear relevant such as the Directive on Groundwater or the Habitats Directive. This Factsheet has been drawn up to take account the main provisions of some of the key Directives - it does not attempt to cover all Directives relevant to waste management, nor all local byelaws, which leaders planning camps are well advised to take notice of and to make enquiries of.

If you plan a large event (say, over 100 people), the fastest and most certain way of getting up to date with local waste issues is to discuss your planned camp and its waste needs with a local council officer responsible for waste in the area on which you intend to camp.

Related UK Legislation

The Waste Framework Directive has been implemented in the UK through the following national legislation:

1. The Environmental Protection Act 1990
2. The Control of Pollution (Amendment) Act 1989
3. The Waste Management Licensing Regulations 1994 (as amended)
4. The Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991

The legislation requires that anyone who treats, keeps, deposits or disposes of waste needs a waste management licence (unless exempt or excluded), which is issued by the Environment Agency. Waste management licences include conditions relating to operations at the site and the Environment Agency monitors activities to ensure compliance with the licence conditions. A key objective of the licensing system is to ensure that waste is recovered or disposed of without endangering human health and without using processes or methods that harm the environment.

It is also an offence to transport controlled waste unless registered with the Environment Agency. Registered carriers are authorised persons for the purposes of the Duty of Care (see below). Similarly, the holder of a waste management licence is also an authorised person.

The "Duty of Care" was introduced under the Environmental Protection Act. Anyone who imports, produces, carries, keeps, treats or disposes of waste is subject to a duty of care whereby they must take all reasonable and applicable measures:

- to prevent another person illegally treating, keeping, depositing or otherwise disposing of the waste
- to prevent the escape of waste
- to ensure that transfer of the waste only occurs to an "authorised person" and that the transfer is accompanied by a written description of the waste

One of the aims of the Duty of Care is to prevent the practice of waste producers simply handing their waste over to anyone prepared to take it away, without giving consideration to where it is going and whether it will be dealt with properly.

The Duty of Care was amended in February 2003 to allow Waste Collection Authorities, in addition to the Environment Agency, to check whether businesses are completing and retaining their Duty of Care transfer notes correctly. The act was further amended in 2005 to include householders within its remit, meaning that it is the householders responsibility to ensure that any waste passed on goes to a registered carrier.

What does this legal background mean to camp planners?

Camp waste, and waste from large events needs to be deposited with and removed by a registered waste disposal company or contractor or local authority, and such arrangements should be made through the land owner or relevant local authority.

In the UK, you should not take anything other than normal household waste to a tip or waste disposal point. Small amounts of normal, household, waste can be deposited at local tips or waste disposal sites by private car. Most tips or waste disposal sites do not permit trailers or vans.

Waste that can be disposed of on site, or incinerated is very limited and only on a very small scale.

The rest of the waste should be bagged, clearly separated into recyclable and non-recyclable items. Food waste should be double bagged, and kept separate from all other waste. Appropriate off-site disposal can then be arranged. Leaders loading and transporting a lorry load of mixed waste away from a site is likely to be illegal in the UK and leaders are strongly advised to make other arrangements.

Incineration and waste water disposal have other rules as below.

Incinerators

It has long been held that all refuse that will burn should be burnt in a camp incinerator – for instance that "tins should be burnt, bashed and buried." The situation is not quite so clear-cut now. For a start, tins can be rinsed, bashed and recycled in most of the UK.

Many wastes create toxic, noxious or polluting smoke. Burning them at the low temperature of camp bonfires is likely to create large amounts of smoke and pollutants. Any fire used to destroy camp waste should be very hot, and intense, and small quantities of waste should be burned at a time. Drying the waste first can reduce pollution further.

There are no restrictions preventing bonfires upon private residential property as long as they do not cause nuisance to other people and the smoke does not affect highways. Some considerations you should make when having a bonfire.

- weather conditions, wind and sun
- time of day
- are neighbours likely to be personally affected?
- are neighbours drying washing outside?
- Is the material dry or wet (smokey)?
- do not burn household waste, tyres or anything containing plastic, foam or paint
- **It should go without saying that it is potentially lethal to dispose of pressurized gasses, fuels, or sealed containers in a fire.**

There are some exemptions but, in general, commercial businesses (including public camp sites) are not permitted to burn waste and are expected to adhere to strict government legislation regarding waste disposal. Animal waste, carcasses, game, meat and bones are covered by specific regulations and should not be incinerated (or buried) near or on farmland.

The Environmental Protection Act 1990 enables local authorities to deal formally with domestic bonfires using statutory nuisance provisions of the Act. However, the legislation is difficult to enforce because it can only be applied to frequent lighting of bonfires at premises. The lighting of a single bonfire cannot be controlled using this legislation. Where there have been previous complaints from local residents, a site may have specific regulations on fires, and you should check with the site manager.

Commercial bonfires are controlled by the Clean Air Act 1974. It is an offence to produce dark or black smoke from a bonfire at commercial premises. Many campsites are "commercial premises" and the site managers should be able to advise you on fires and waste burning.

There is no reason for any waste to be burnt outdoors on open fires in or near any urban area because a comprehensive waste disposal service is usually provided.

SCOUTING SKILLS

WASTE DISPOSAL AT CAMP

0845 300 1818

Where allowed, and where properly controlled, a 5-gallon oil drum makes an excellent incinerator. Remove the lid and then make holes in sides and base with pickaxe (to stop it flying away when struck, you will need to fill it with sand or tie it down). Put the drum on some bricks to stop charring of the ground and fill it with a few centimeters of earth or sand at the bottom to capture any run-off. An even better idea is to build a rock 'chimney' or brick tower using overlapping bricks with air gaps on high ground. Incinerators should be built on the leeward side of the camp, stocked with dry wood, allowed to burn hot and fierce and only small quantities of waste burned at a time.

Most plastics, oils, batteries, fats and fabrics are very polluting and potentially very toxic and should not be burned at camp.

The Problem of Waste Water Disposal

Wastewater from cooking, washing up, showers, laundry and cleaning people is contaminated with bacteria, detergents, fats, oils, greases and soluble nutrients as well as any secondary contamination. It cannot be allowed into streams, rivers, lakes or ground water. At camp we try to ensure that natural filtration and microbial action decontaminates the wastewater before it reaches into the ground water or local watercourses.

If you do not give nature a helping hand, or you overload the natural systems, or you allow untreated water to into water courses or ground water you risk algal blooms, fish kill, and even poisoning other people or making them ill with water borne diseases. Those people may well be your campers.

You first need to estimate the quantity of grey water that will be produced each day. For a rough guide:

1. a camp where you are only cooking will create 3 gallons (13 litres) of waste water per day, and one where you have showers, laundry, face washing and water activities (like slides) up to 30 gallons, or 130 litres per person on peak days.
2. you need to know the maximum number of individuals who will be at your camp, including adults, Scouts, activity staff and guests. Multiply the per-person quantities by the maximum number of people to estimate the amount of grey water produced on a peak day.

You therefore need to create a system that can dispose of that volume of water in a single day, safely.

Water and Wet Pits

The disposal of water can be a problem on camp, as although many taps have drains, campsite owners don't usually like it being used for wastewater. The recommended method of water disposal is a Wet Pit, which first filters 'solids' out of water, (like beans from washing up liquid), then provides a chemical trap for toxins (fresh charcoal at the bottom and scrunched up newspaper or grass in the middle work well), then finally access to aerated soils allows natural bacteria to decontaminate the rest.

A wet pit is simply a device for disposing of your dirty water (washing up water, from pans etc). Although there is always a temptation to just 'chuck it in the hedge', all the food bits and things will attract animals - presenting

several other problems. So, a wet pit acts as a filter and takes any solid matter (food bits, grease etc) out of the water and allows 'clean' water to be slowly seek through the soil and be cleaned by nature.

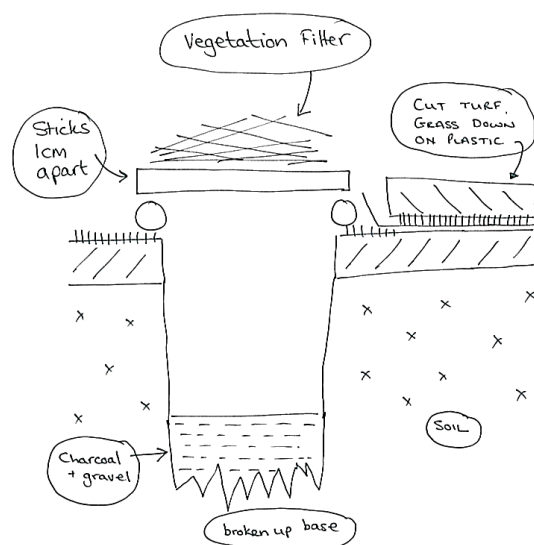
There are two common methods of wet pits, both rely on a combination of physical filtration, chemical cleaning and slow natural seepage into the soil where bacteria can digest the remains leaving clean water:

1 - Wet Pit in the ground

Although the traditional method of creating a wet pit is this method, in many campsites these are either discouraged or banned altogether, simply because by the end of the camping season there will be so many holes in the ground there's nowhere left to put a tent! However, this method is fine if you are in, for example, a farmer's field and have asked permission first. You must be sure not to contaminate the soil with non-vegetable oils, meat products or toxic substances (such as concentrated detergents) at all times.

The method of construction for an 'in the ground' wet pit is as follows:

- Dig your hole. This should be at least 1ft (30cm) square, and 18"-2' (45-60cm) deep.
- Remove the turf carefully, place face down and keep well watered. If you can, find plastic to put it on..
- Once you have your hole, make a frame then weave a lattice of green branches (approx 1cm apart holes) and place over the hole, and top with long grass, bracken or rough vegetations and any other suitable undergrowth.
- To use, simply pour the water slowly on the top of the wet pit, and the grass etc will filter out all the solid matter.
- Change the filter material regularly (at least once a day) - this can be burnt. You may wish to use rubber gloves for this..



Filter materials and charcoal should be changed daily. If you are on a long camp, the position of the wet pit should

be changed every few days. At the end of camp (or when moving the wet pit), simply remove the lattice and undergrowth, and fill in. Replace the turf on the top and put a 'foul ground' marker (small cross made out of sticks) in the middle to warn other campers that you have used that spot.

A common error is to make the pit too small, or dig it in clay so it will not drain. This leads to flooding and obnoxious wet ground. There are some rules above to help estimate water disposal, but in a hurry, to make a pit large enough, aim for twice the volume of all the washing up bowls you aim to use at one time.

Each day each wet pit on sandy or gravelly soil will safely drain about 193 litres per square metre of surface in the pit. (That is 4 gallons per square foot per day). A 1 metre square pit, 1 metre deep will therefore drain nearly 970 litres a day (50 washing up bowls full) on sandy ground.

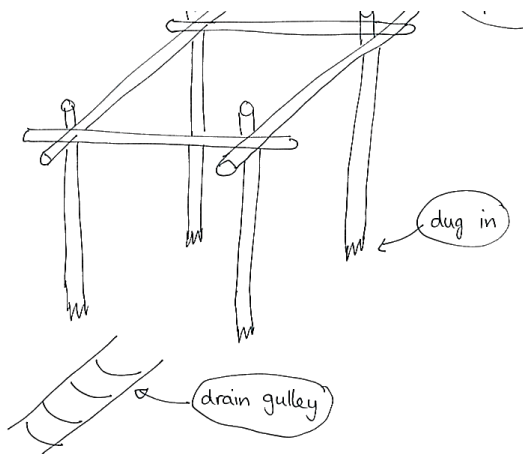
Sadly, on loams water drains only half as fast (say 25 washing up bowls in a pit 1m sq and 1 deep) and on clays it may drain only half as fast again (say 12 washing up bowls).

Wastewater will not drain AT ALL from saturated clays. So – if you are camping on clay and if it has rained hard, or you have used a pit for a couple of days, you will have to find a new area to dig a pit or swap to a bag/bucket above ground filter.

Saturated pits or wet ground have another problem: the natural bacteria that digest wastes for you need oxygen and access to the air to work properly. If they are 'drowned' they die and then less helpful bacteria (that do not need oxygen) will take over and release noxious smells and create their own 'bio film' slimes. So: keep it fresh and airy and do not let it get saturated.

2 - Wet Pit Filter Over the ground.

The materials for this are either an old bucket or a strong plastic bag (coal / fertiliser type), and four staves about 2ft (60cm) long. In their absence, you could simply use a piece of rope and tie it to a tree, but keep the 'mouth' open.

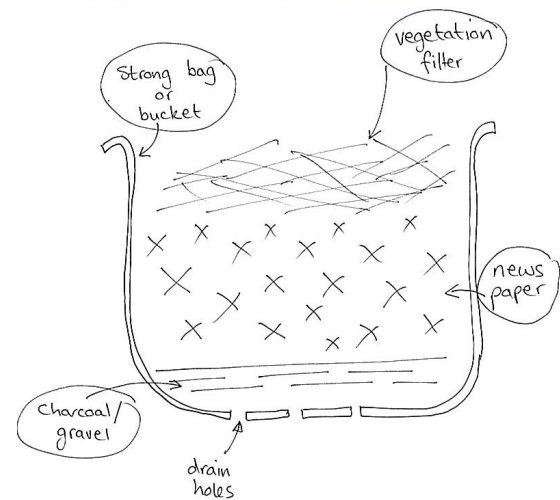


If using a bucket, drill holes in the bottom before you leave camp, and if using a plastic bag you can make holes in the bottom using a sharp knife. The large plastic flowerpots (30 litres and larger) in which standard trees are delivered are particularly useful for this as they have holes and handles and are free.

The method of construction of an 'over the ground' wet pit is as follows: Knock the staves into the ground in a square, to contain the bucket or to hold the bag reasonably open. Make sure that they are firm. Then, you need to attach the bag/bucket to the poles: For a bucket, put the bucket in the middle so the rim is resting on the top of the four poles, then tie around them so the bucket is held firmly in place.

For a plastic bag, turn a lip of around 2" (5cm) over the poles, then tie a clove hitch around each pole, securing the bag around the hole. Then, simply fill the bag or bucket with the same grass/bracken or rough vegetation undergrowth, and use exactly the same way as an in the ground one. Make sure that you change the grass regularly otherwise it will begin to smell and attract flies.

Note again that we have physical filters on top that we can remove and burn, layers to slow down flow and trap particles, and a charcoal / gravel layer at the bottom to give a quick chemical trap for toxins and detergents.



The most important bit of an above ground filter is the bit underneath it: lift a square of turf and cut a turf free drainage channel, breaking up the soil in the gully and covering it with grass, bracken, pine needles or some other filter / trap material. NO water should be visible on the surface at the end of the gully. If you can see suds, grease or running water at the end of the gully then you need to build another filter or swap to a pit system.

Above ground filters or wet pits are very prone to flooding, so it is vital that you use them sparingly and have enough of them to cope with the surge of water after the evening washing up.

It is perfectly ok to put a bag filter over a normal pit.

At the end of the camp, you simply need to burn the contents, give the bucket a good clean out with hot water and disinfectant (if using a bag, it is probably better disposed of), and remove the staves.

Where to put a wet pit

Whichever method of construction you use, the siting of the wet pit is important. It should be well away from tents and food storage, preferably near an edge, and on the downhill end of the site, so it will drain into a place where nobody is going to walk on it. You may need to dig a gully to ensure this (suitably marked and secured from accidental falls or splashes.).

SCOUTING SKILLS

WASTE DISPOSAL AT CAMP



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1. Pits need to be clearly marked, preferably roped off: they are serious trip or fall hazard.
2. Pits should never be within 100m of a watercourse, lake or well.
3. Pits should be near where waste is created to minimize travel with wastewater.
4. It may well be worth walking around the site to find soil that will drain before digging a pit.

When patrol camping, each patrol/fireplace should have one wet pit, and it is advisable to draw up a 'cleaning rota' for the wet pit as it is often not the most popular of jobs. Multiple small pits spread the workload and are more effective filters than one large one.

When a wet pit or filter is not enough

Once you have more than about 100 people, there are real issues with wastewater disposal, and you are advised to seek local professional advice. While larger filters can be made (for instance using 1000 litre plastic drums and plastic piping leading into gravel lined soak-away pits of substantial size), this is not a trivial matter to engineer or keep safe for use.

You can obtain water treatment and wastewater treatment facilities on hire which can be delivered to site, in which case you need to review the service contracts and performance against the needs of the site and the camp.

Waste Inspection and Use

Attention to waste disposal and recycling can minimize the impact of waste at camp.

Recycling and waste storage for removal needs to be inspected daily, and all waste in bags or containers transported off site areas to the designated waste removal area at least once every day. Any signs of vermin, pests, or local contamination (including noxious smells), need to be dealt with immediately.

Camp leaders should inspect the pit system at the end of every meal or wash time. Any signs of overflow, leakage or contamination spreading into the environment need immediate attention.

Pit covers, filters and lining should be burned on hot fire, in small pieces, at least once per day and replaced with fresh material. This will make fresh charcoal for filters, which should, of course, be allowed to cool before use.

Flooded or saturated pits will not decontaminate water and need urgent treatment.

It is wise practice to walk to nearby watercourses and check for contamination at least once a day, first thing in the mornings is usually most revealing as peak load of waste water is after washing up in the evening and evening showers.

Overflowing pits should be immediately put out of use until they have fully drained (no water can be seen in them) and then reassessed.

Table (1)
List of camp wastes that can typically be bagged and recycled either at site or local to your site

| Material | Kerbside Collections | Industrial Recycling Centres | Household Recycling Centre | Specialist Removal |
|---|----------------------|------------------------------|----------------------------|----------------------------|
| Aerosols (including pressurized gasses and fuels) | yes | yes | yes | |
| Adhesives / glues | | | yes | |
| Asbestos | | | | yes |
| Batteries - car & household | | | yes | yes |
| Cardboard and paper | yes | yes | yes | Can compost |
| Cartons | yes | yes | yes | |
| Cans | yes | yes | yes | yes |
| Ceramics | | | yes | Charity Shops |
| Chipboard & MDF | | | yes | - |
| Clothing & Textiles | yes | yes | yes | Charity Shops |
| Foil Aluminium | yes | yes | yes | yes |
| Food Waste | (some do) | | | yes (biogen) |
| Garden Waste | yes | | yes | Can compost |
| Gas Cylinder | | | yes | Exchange at suppliers |
| Glass Bottles & Jars | yes | yes | yes | |
| Lightbulbs - low energy | | | yes | - |
| Liquid Chemicals | | | yes | - |
| Medicines | | | | Return to pharmacy |
| Newspapers & Magazines | yes | yes | yes | |
| Oil - Car Engine, cooking | | | yes | yes |
| Plastic Bags | | | yes | yes |
| Plastic Bottles | yes | | yes | yes |
| Plastics - hard | (some do) | | yes | - |
| Scrap Metal | | | yes | yes |
| Soil | | | yes | Contaminated soils removal |
| Tyres | | | yes | - |
| Wood & Timber | | | yes | - |

References

Waste Online <http://www.wasteonline.org.uk>

Scout Group Waste Disposal <http://www.9thHuddersfieldScouts.org.uk>