WATER POLLUTION

STORAGE OF FUEL & OIL

Petrol, diesel and oil are all highly harmful to plants, animals and humans and can give rise to pollution of the environment.

Such substances are released into the environment through spillages during delivery or use or through waste materials being poured directly to drains or gullies.

Storage of oil is subject to specific legal minimum standards. If pollution is caused then prosecution may follow. The cost of clean up and legal proceedings following a spillage incident far exceeds the cost of putting proper controls in place.

DON'T

- ✘ **DON'T** refuel or store oil within 10m of watercourses or surface water drains.
- ✘ **DON'T** leave bunds and drip trays to overflow.
- ✘ **DON'T** leave refuelling hoses outside of bunds after use.
- ✘ **DON'T** use high pressure delivery systems when filling small containers.

DO

GENERAL

- ✔ Store oils away from drains or watercourses.
- ✔ Return oil and fuels to storage areas after use.
- ✔ Locate oil stores away from areas of high vehicular movement to prevent accidental damage.
- ✔ Bund individual 205 litre drums to 25%.
- ✔ Supervise all fuel deliveries.
- ✔ Lock oil stores or bowsers when not in use.
- ✔ Use drip trays under all static plant and during refuelling from mobile plant.

BULK STORAGE

- ✔ Bund tanks and bowsers to 110%.
- ✔ Ensure bunds are free from cracks and leaks.
- ✔ Regularly empty bunds and drip trays of rainwater, which should be treated as contaminated.
- ✔ Keep all hoses and pipe work within bunded area after use.
- ✔ Keep a spill kit near to fuel and oil storage areas and refuelling areas.
- ✔ Report any irregularities or incidents.

USE OF FUEL & OIL

DO

- ✔ Always put lids on any containers after use.
- ✔ Use the automatic shut off "pistol grip" delivery systems when refuelling from tanks or mobile bowser – do not tamper with the shut off system at any time.
- ✔ Ensure that all refuelling is constantly attended and only undertaken at least 10m away from watercourses and drains.
- ✔ Clean up any minor spillages.
- ✔ Use funnels when refuelling small plant and equipment to avoid spillages.
- ✔ Use plant nappies or drip trays under all plant or equipment that contains fuel or oils.
- ✔ Ensure that a fully stocked spill kit is easily accessible at all work sites.

DISPOSAL

- ✔ Ask your manager what to do with waste oil, petrol and diesel and any materials contaminated with such substances, prior to any disposal

DON'T

- ✘ **DON'T** leave refuelling operations unattended at any time.
- ✘ **DON'T** leave containers open when unused.
- ✘ **DON'T** leave containers in an area where they can be damaged.

DISPOSAL

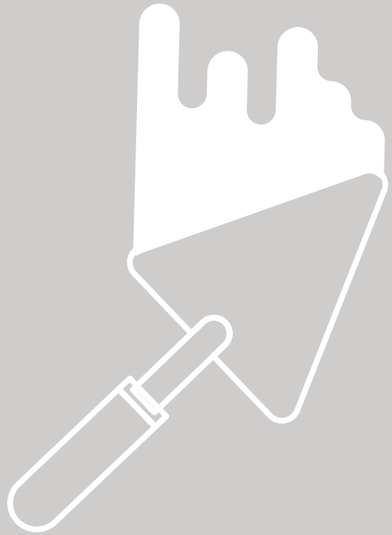
- ✘ **DON'T** pour petrol, diesel or waste oil down drains or gullies.
- ✘ **DON'T** try to dispose of petrol, diesel or waste oils by setting fire to them.
- ✘ **DON'T** dispose of used spill kits in general waste, place them only in a hazardous waste container.

CEMENT & CONCRETE

Water contaminated with cement is highly alkaline and can be toxic to fish, plants and animals living in watercourses. Cement particles entering a watercourse can clog fishes' gills and also destroy their spawning grounds.

It is illegal to allow cement, unset concrete or washout water containing cement to enter a watercourse or drain.

Special permission is needed before construction work can take place in a watercourse.



DO

- ✔ Identify all watercourses, gullies and drains prior to commencing work.
- ✔ Store bulk and bagged cement and concrete additives at least 10 metres away from watercourses, gullies and drains.
- ✔ Undertake mixing/batching works well away from watercourses and drains.
- ✔ Use only designated areas for concrete washout.
- ✔ Where necessary protect nearby drains against washout water running into them.
- ✔ **NOTIFY** your manager **IMMEDIATELY** if you see any concrete spillages or concrete washout likely to cause pollution.

DON'T

- ✘ **DON'T** hose down spills of concrete or cement into surface water drains.
- ✘ **DON'T** allow washout water to flow into any watercourse or drain.
- ✘ **DON'T** allow ready-mix trucks to washout anywhere other than in safe areas designated for the purpose.
- ✘ **DON'T** wash off any tools or plant in watercourses.

SILT

High levels of silt suspended in water can suffocate fish by blocking their gills, can remove essential oxygen from the water and can kill plants, animals and insects living in the water by stopping sunlight.

Because of the potential for harm, it is illegal to allow silt to enter a watercourse or drain.

Silt pollution spoils the appearance of watercourses, is easily traceable to the site from where it originated and, in the past, has been a major cause of prosecution.

DO

- ✔ Only discharge silty water into designated settlement systems or through a filter.
- ✔ Check that site drainage and settlement systems are working - discolouration may indicate high pollutant loading.
- ✔ Stop pumping and contact your manager if you think a problem is arising.
- ✔ Ensure that all hardstandings are kept clean – notify your manager if an area is silty or is covered in mud.
- ✔ Notify your manager immediately if you see silty water entering a watercourse or drain and do try to stop it or divert it away by, for example, using sand bags.

DON'T

- ✘ **DON'T** dewater any excavation without getting permission from your manager.
- ✘ **DON'T** pump silty water directly into rivers, ditches or surface water drains.
- ✘ **DON'T** strip land of vegetation unless it is absolutely necessary – vegetation reduces silt run-off.
- ✘ **DON'T** store soil, stone or similar materials within 10 metres of watercourses or drains.
- ✘ **DON'T** dig a grip to release ponded water to a watercourse or drain.

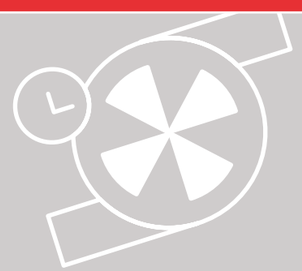
PUMPING & OVERPUMPING

Excavations often require prior dewatering. Water pumped from excavations can be muddy (silty) and can be contaminated. Sections of existing sewers and pipelines are sometimes taken out of service to allow repair or alterations and flows can be maintained by installing temporary pumps and 'overpumping' those sections.

The improper discharge of water polluted by mud or contaminants can cause serious damage to watercourses. it is illegal to allow polluted water to enter a watercourse or surface drain. If water is discharged into a sewer or gully of insuffcient capacity then flooding will occur, potentially causing pollutants to enter watercourses or creating nuisance to site neighbours.

DON'T

- ✘ **DON'T** leave pumping operations unattended for long periods unless authorised to do so by your line manager.
- ✘ **DON'T** continue with overpumping if the receiving sewer or pipeline cannot cope with the capacity.



DO

- ✔ Check with your line manager whether any treatment systems are required before final discharge of pumped out water. Typical systems include: settlement tanks, discharge over grassed areas, through silt socks or hay bales.
- ✔ Check that the point of discharge is to the correct location, that is to the sewer, manhole or gully as set out by your line manager.
- ✔ Check that all couplings and other pipework fittings are secure.
- ✔ Periodically check that any treatment systems are working, water being finally discharged is clear of silt or solids and is not causing damage to the bed or banks of any watercourse.
- ✔ **NOTIFY** your line manager **IMMEDIATELY** if you notice: pollution (muddy water, oils etc) occurring; the discharge causing flooding; or any pipework is damaged or connections have broken or are leaking.

WASHING DOWN PLANT & MACHINERY

Washing down plant and machinery, hosing down concrete trucks/mixers or degreasing engines can all lead to serious pollution incidents if it is not properly carried out. The resulting dirty water should not be allowed to enter surface water drains or road gullies. Careful consideration must be given to where washing down is carried out.

Dirty washing and rinsing water may contain dislodged mud, grease, oils, detergents, cleaning agents or toxic chemicals and materials that can kill fish and other aquatic life and which may also seriously affect the surrounding environment.

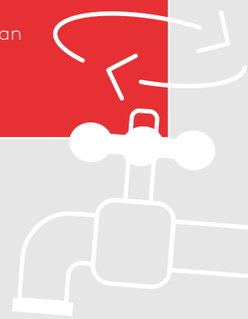
It is illegal to allow polluting matter such as silt, cement, concrete, fuel, oils, cleaning chemicals and detergents to enter a watercourse or a drain.

DO

- ✔ Ask your manager if there is a place specially designated for washing down plant and machinery.
- ✔ Use only these designated wash down areas whenever they are provided.
- ✔ Ensure that any wash down slurry or residue is contained and cannot enter drains or watercourses.
- ✔ Check with your manager before using degreasing or cleansing solutions– don't just assume they can be used.
- ✔ Report to your manager any washing down that may cause a pollution incident.

DON'T

- ✘ **DON'T** wash down before finding out the proper place in which to do it.
- ✘ **DON'T** wash down directly into watercourses or surface water drains.
- ✘ **DON'T** allow dirty wash down water to go down roadside gullies.
- ✘ **DON'T** wash down near material or storage areas or immediately next to working areas.
- ✘ **DON'T** use any more water than is necessary – reduce waste.



BENTONITE

Bentonite is a type of clay that swells and gels when dispersed in water. It acts like a liquid when agitated or stirred and like a solid when left at rest.

As "mud" it is used as a lubricant when drilling or pipe pushing and as "slurry" it is used to fill and support the sides of excavations during the construction of diaphragm walls, cut-off walls, or piles. The use of bentonite can lead to spillage around operational areas and around

mixing, pumping and storage equipment. Liquid bentonite is highly polluting and if it enters watercourses or drains can give rise to damage to plants and animals in watercourses. Pollution of watercourses by bentonite may lead to prosecution.

If not correctly managed, bentonite in powder form can become airborne causing dust nuisance to local residents leading to legal action by the Local Authority.

DO

- ✔ Keep dry powder or granule containers closed to prevent dust or damage by rain or moisture.
- ✔ Ensure that bentonite does not spill onto the ground.
- ✔ Ensure that if spillages do occur they are promptly cleared up.
- ✔ Protect watercourses and drains from any spillage of liquid bentonite.
- ✔ Report immediately to your manager any incidents where bentonite is seen entering a watercourse or a drain, or is becoming airborne.
- ✔ Ask your manager what to do with waste bentonite.

DON'T

- ✘ **DON'T** leave containers or bags containing bentonite open to the air.
- ✘ **DON'T** ignore spillages on the ground.
- ✘ **DON'T** intentionally allow liquid or powdered bentonite to spill onto the ground.
- ✘ **DON'T** pour bentonite into watercourses or drains.
- ✘ **DON'T** give bentonite away to third parties without checking with your manager.

SPILL CONTROL

Accidental releases of oils and chemicals from construction-sites make up a large number of pollution incidents that occur each year, polluting water courses and contaminating land and groundwater.

Substances we use that could cause harm if spilled include: fuel, oils, paints, solvents, antifreeze, concrete. Spills spread very quickly and lead to environmental harm. Fines and clean up costs can be expensive and even individuals can be held responsible.

DO

- ✔ **STOP WORK** immediately.
- ✔ If spillage is flammable, extinguish all possible sources of ignition.
- ✔ Identify the source of pollution and rectify the problem.
- ✔ Contain the spillage – on land use socks, earth or sand to construct a bund around the spill to stop it spreading. Use booms to contain oil spills that have already entered a watercourse.
- ✔ Contact your Line Manager.
- ✔ Put on appropriate PPE – typically rubber gloves.
- ✔ Protect sensitive areas (e.g. watercourses or surface water drains – use drain covers or use earth/sand to construct a bund).
- ✔ Clean up the spill. Use absorbent granules/pads to mop up spills. Large pools of oil or spills which cannot be absorbed should be removed by gulper.
- ✔ Dispose of all contaminated materials correctly – those containing substances such as oil, diesel or paint will be hazardous waste. Ensure any contaminated water is taken to an appropriately licensed disposal site.
- ✔ Notify your line manager of actions taken.

DON'T

- ✘ **DON'T** ignore it! **STOP WORK** and **ACT** immediately.
- ✘ **DON'T** hide the incident – ensure you report it and implement controls.
- ✘ **DON'T** ever hose a spill into the drainage system. Always use absorbent materials.