

Guidance

Control and monitor emissions for your environmental permit

How you must control and monitor emissions from your activities that may cause pollution.

From: **Environment Agency** (</government/organisations/environment-agency>)
and **Department for Environment, Food & Rural Affairs**
(</government/organisations/department-for-environment-food-rural-affairs>)

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Applies to England

Guidance for Northern Ireland

(<https://www.doeni.gov.uk/topics/pollution>)

Guidance for Scotland

(<https://www.sepa.org.uk/regulations/authorisations-and-permits/>)

Guidance for Wales

(<https://naturalresources.wales/apply-for-a-permit/?lang=en>)

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If you' re applying for a new permit or already have a permit, read this guide to find out:

- how to monitor emissions from your activity
- how to operate within any emissions limits that you might get in your permit
- what to do if the Environment Agency tell you that you' re causing pollution
- what to do if you need to write a plan for emissions, odour, noise and vibration or pest management

Use your risk assessment to help you identify emissions from your site. Read how to do a [risk assessment \(https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit\)](https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit) if you have not done one yet.

You must show how you will control your emissions in your [management system \(https://www.gov.uk/guidance/develop-a-management-system-environmental-permits\)](https://www.gov.uk/guidance/develop-a-management-system-environmental-permits). If you have a waste, mining waste or installation permit you may need to write plans to explain how you' ll deal with emissions, odour, noise and vibration or pests. These plans will become part of your overall management system.

Permit conditions

Most conditions are objective-based: the Environment Agency defines what the objective is but it' s up to you how you meet an objective. For example, an objective at a composting site could be to use measures to make sure odour does not cause pollution outside your site' s boundary.

This guide will help you work out how to meet an objective (what the appropriate measures you should use are). You should also follow the specific technical guidance for your particular type of activity or for the type of pollution (for example, odour and bioaerosol).

Conditions will be prescriptive if there's a high risk from your activity or site that needs to be controlled. In these cases the condition will tell you exactly what you need to do, for example by:

- stating the equipment you must use
- defining a specific emission limit you must comply with
- telling you to implement a plan which the Environment Agency has approved

You must follow all the conditions in your permit or you could be breaking the law. If you cause pollution the Environment Agency may suspend or cancel your permit.

Pollution

You must follow the conditions in your permit which tell you to prevent or minimise pollution. Pollution is any emission as a result of your operations which may:

- be harmful to human health or the quality of the environment, for example ecosystems on land or water
- cause offence to a human sense, for example hearing (apart from standalone surface or groundwater discharges)
- cause damage to property
- damage or interfere with amenities or other uses of the environment

Point source emissions

Your permit may set limits on emissions to air, water or land from point sources (emissions from one or more set points), for example:

- discharges to infiltration systems (drainage fields)
- exhaust gas from a boiler stack
- waste water or treated sewage discharge from an effluent treatment plant outlet pipe
- emission of bioaerosols from open processes or sources or point source release from stacks

There may be more than one type of emission from a specific point, for example an effluent treatment plant outlet pipe might release treated effluent and surface water drainage.

Find out [how the Environment Agency assesses your compliance with site-specific quality numeric limits for standalone water discharge activities and point source groundwater activity permits](https://www.gov.uk/government/publications/site-specific-quality-numeric-permit-limits-discharges-to-surface-water-and-groundwater) (<https://www.gov.uk/government/publications/site-specific-quality-numeric-permit-limits-discharges-to-surface-water-and-groundwater>).

Emissions that do not have set limits

There are some types of emission that may cause pollution but do not have set limits in permit conditions. In permits these are called ‘emissions not controlled by emissions limits’ or ‘fugitive emissions’.

For waste, mining waste and installations these include:

- dust
- fumes
- flies
- vermin
- mud
- litter

For water discharge activities and groundwater activities there may be things in the discharge that do not have set limits in your permit.

You must control these emissions and make sure they do not cause pollution.

Emissions management plan

If your risk assessment shows you have a risk of these types of emissions you may need to provide an emissions management plan when you apply for your permit to demonstrate how you’ll control them.

If you cause pollution from these types of emissions but do not already have an emissions management plan, the Environment Agency may ask you to submit a plan to them.

Dust, mud and litter

If you have a waste, installation or mining waste permit you must use appropriate measures to prevent emissions of dust and particulates, including bioaerosols, mud and litter.

The following are suggested appropriate measures, but you may also need to use other measures.

Site layout, housekeeping and operations

Appropriate measures include:

- designing the layout of your site to prevent emissions and limit the emissions sensitive receptors are exposed to – for example homes, schools, hospitals or nursing homes, food preparation facilities or similar
- using good housekeeping practices to make sure your site is clear of dust, mud, litter and other debris
- using road sweepers to remove dust, mud, litter and other debris
- erecting litter fences or micro-netting around the site
- avoiding activities that could spread dust and particulates, mud or litter during high winds – for example, loading and unloading waste from vehicles outside buildings or treating waste materials outside buildings
- making sure treatment process parameters, such as temperature or moisture, are set at the right level
- making sure abatement systems are designed to treat and minimise releases – these systems must be monitored and maintained following the designer's or manufacturer's recommendations

Enclosure in buildings

Appropriate measures include:

- carrying out operations inside buildings using negative pressure dust extraction systems whenever possible
- installing PVC strip curtains to reduce emissions through doorways
- installing automatic, fast-closing doors and designing doorways and openings in a way that prevents through-drafts
- enclosing conveyors and minimising drops, or using pneumatic or screw conveying systems
- installing filters to vents on silos, building extractors and conveying systems

- using abatement systems that are designed, monitored and maintained by qualified personnel

If your site is in London Borough or an air quality management area for PM10 (particles of 10 micrometers or less) then you may need to carry out your activities inside a building (excluding landfill and deposit for recovery activities).

Vehicle movement

Appropriate measures include:

- using enclosed vehicles, skips or containers wherever possible, or covering them if this is not possible (unless they're empty)
- enforcing speed limits and reducing vehicle movements and idling on site
- minimising the number of access points to your site from public roads
- surfacing or paving your roadways suitably (ideally with concrete) to make them easy to clean
- making sure vehicles keep to paved roads
- regularly cleaning and dampening roadways
- using wheel wash systems to slow trucks – wash wheels and keep roadways damp
- making sure road-going vehicles do not enter unmade ground and muddy areas (including the tipping piles) to reduce muddy track-out

Dust suppression and monitoring

Appropriate measures include:

- using appropriate dust suppression systems (such as mist sprays, bowsers, water cannons, chemical suppressants, heavy water and foam suppressants) at appropriate locations and times
- installing dust and particulate monitors with trigger alarms

Stockpiled wastes and open ground

You must keep stockpile levels at least 0.5m below the top of structures holding the waste to minimise wind-whipping at all times.

Other appropriate measures include:

- controlling the moisture content of the material in the stockpile to prevent materials becoming friable
- planting grass or trees on open ground to reduce dust (hydro-seeding can rapidly establish vegetation on waste tips, slag heaps or other apparently infertile ground)
- not positioning stockpiles outdoors or leaving them uncovered

If you cannot avoid positioning stockpiles outdoors, or leaving them uncovered, you should take steps to prevent material escaping from them. For example by:

- using sprays and binders
- appropriately positioning bay walls or windbreaks
- making sure stockpiles do not face the direction of the prevailing wind
- minimising waste storage heights and volumes
- covering
- minimising stockpile volumes

Emissions management plan for dust

Waste management activities have the potential to produce dust pollution. You must provide a dust and emissions management plan if you are applying for a bespoke permit for any of the activities in the following list and your site is in either of the locations listed.

If you carry out any of these, or a combination of these activities:

- keeping, treating or disposing into a landfill, waste material that gives rise to fine or dusty materials - examples include but are not limited to; wood, aggregates, biowaste in the open, concrete, scrap metal, incinerator bottom ashes, gypsum, asbestos, glass or mixtures containing these wastes
- recovering waste at a deposit for recovery site
- sector installations that may produce fugitive dust emissions, such as but not limited to, cement and lime works

And you are in either of these locations:

- in, or within 1000m of an air quality management area for PM10
- within 500m of a sensitive receptor

Sensitive receptors include, but are not limited to:

- human receptors such as homes, workplaces, schools, hospitals, nursing homes
- environmental receptors such as conservation sites, protected species, habitats, agricultural land
- commercial and industrial receptors such as manufacturing, food preparation and outlets, car parks, air conditioning systems, solar panels

If you carry out any of the activities described in this section inside a building your dust and emissions management plan may need significantly less detail. This is because the Environment Agency take a risk proportionate approach to the level of abatement used at the site. For example, a fully enclosed building with small access and egress points, with fast action doors that default closed and a suitable air extraction and filtration system, may only need a brief dust and emissions management plan. The plan must:

- identify receptors
- demonstrate accountability of keeping the building operational
- have a section on responding to complaints

If you are unsure whether you need to submit a dust and emissions management plan, please discuss this with the Environment Agency before you submit your permit application.

If you cause dust emissions but do not already have a dust and emissions management plan, the Environment Agency may ask you to submit one.

What to include in your dust management plan

Your dust management plan must include:

- the plan version number and date
- an introduction to the site and description of site operations – including site plan(s) to support the description

You must also provide details of:

- local sensitive receptors
- other local contributors of dust and emissions
- emissions sources on site
- site abatement systems, including the nomination of responsibility
- how you contact the local community and respond to complaints

You must also provide details of the location and specifications of site PM10 monitoring, including:

- the location of the monitor
- how you manage the data
- how the equipment is serviced and calibrated
- the trigger action levels (if applicable)

In your plan you must also show how you have taken into account the principle of the source, pathway, receptor model (see [risk assessments for your environmental permit \(https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit\)](https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit)) in planning your:

- site
- operations
- use of abatement to minimise emissions

You should also describe how you will take account of and deal with different weather conditions when planning for and carrying out site activities.

You can ask the Environment Agency to give you a template you can use to help you produce a suitable plan. Ask for the template during your pre-application discussions or email air.quality@environment-agency.gov.uk.

Emissions to water

Make sure that your site surfaces, including roofs, hard standing, working areas, any containment structures required by your permit, such as bunds or other secondary containment measures, and your site drainage infrastructure will prevent pollution to surface water and groundwater.

Consider collection capacities, surface thicknesses, strength and reinforcement, falls, materials of construction and permeability.

You must make sure any rainfall collection systems are kept separate from areas of the site which are or may be contaminated.

Make sure your surfaces and containment or drainage facilities are resistant to spilled chemicals. Your management system must include a plan about how you will inspect and maintain your surfaces and containment facilities.

The following are needed to prevent contaminated runoff polluting groundwater or surface waters:

- a waterproof surface
- spill containment kerbs
- sealed construction joints

If you do not already have these things in place you must have a plan to show how and when you' ll put them in place if they' re needed. You may need to use extra measures to control risks in the meantime.

Your permit may say you must have a connection to a sealed drainage system.

A sealed drainage system prevents water escaping from your operational area, and means any liquid used in your process will be stored in the system and collected for disposal elsewhere.

You must:

- collect any liquid that passes through your drainage system in a sealed sump (collection pool), unless you have a permit to discharge the liquid
- dispose of collected liquid through a treatment facility or have it collected by a specialist waste disposal company

If your operation causes pollution, you must:

- clean up the pollution as soon as possible
- stop the activity until you have changed your operation to prevent pollution in future
- tell the Environment Agency (your permit will tell you how to do this)

Leaks from containers

You must prevent leaks or accidental release of liquids that could cause pollution from tanks, sumps, containers and bunds.

Bunds are walls built around tanks to capture anything that leaks from them.

Piping and drainage

You must design your site so that leaks from underground structures are prevented and any leaks can be detected quickly.

You must keep a record of the route of any underground drains or pipework on your site.

If you use oil in your operations you must fit and maintain oil separators to surface water drainage systems to prevent discharges being contaminated by oil.

Containing emissions

You do not need to follow this guidance on bunding if your storage tanks, treatment tanks and underground pipework hold, treat or transport sewage at sewage treatment works or sewerage networks.

You must provide containment (bunding) for underground pipework, sumps and storage vessels. You may also need to fit a leak detection system, for example if you're carrying out your activity in a [groundwater source protection zone](https://www.gov.uk/government/publications/groundwater-source-protection-zones) (<https://www.gov.uk/government/publications/groundwater-source-protection-zones>).

You must keep a list of any underground sumps or storage vessels.

Your sumps and bunds must be:

- waterproof
- resistant to any materials you're going to store in them

You must make sure sumps and bunds do not become contaminated or blocked as this may cause them to leak.

You must:

- check that sumps and bunds are working correctly, for example that there are no cracks
- hydraulically test any sump or bund if you're worried it is not working correctly
- fit a high-level probe to any sumps or bunds that you cannot check with an alarm to alert you before waste begins to escape containment

Your bunds must also have a capacity larger than both of the following:

- 110% of the largest tank the bund is protecting
- 25% of the combined volume of all the tanks the bund is protecting

Use the maximum volume that a tank can physically hold when calculating capacity. Do not use the volume a tank is designed to hold.

Your bunds must also:

- have no outlets (for example drains or taps)
- drain to a blind (completely enclosed) collection point
- have self-contained pipework that is separate from the container pipework

Your bunds must have tanker connection points within the bund. If that's not possible, the tanker connections points must be contained to capture any leaks.

If you need to use your bund to contain a leak you must make sure it's emptied to restore maximum capacity.

Storage areas for intermediate bulk containers, drums, bags

You must bund or kerb any area where environmentally harmful substances are stored (for example acids, chemical solvents, milk, lubricating oils and styrene).

You must store substances separately if it may be risky to store them too near each other, for example because they're flammable or if 2 substances spilled and mixed could cause an explosion or harmful fumes.

Do not use plastic intermediate bulk containers (medium-sized containers that can be moved easily and are made out of plastic or metal) to store flammable materials.

You must also:

- locate storage areas away from watercourses, [sensitive groundwater areas such as Source Protection Zone 1](https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs) (<https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs>), unprotected drainage systems and sensitive boundaries, for example near areas where people live or nature reserves
- clearly mark your storage areas, and any containers and packages in them
- define the maximum storage capacities for each of your storage areas and containers and stick to them
- store containers, including empty containers, with lids, caps and valves secured and in place
- inspect your containers, drums and small packages at least once a week to check they're not damaged or leaking and put a procedure in place to replace or repair damaged or leaking containers

Volatile organic compounds (VOCs)

Volatile organic compounds (VOCs) are substances with low boiling points that evaporate from solids or liquids used in industrial processes, for example formaldehyde evaporating from paint, or benzene from fuel.

You must take the following steps to prevent emissions of VOCs:

- enclose any containers on your site
- fit equipment to capture VOCs on any vents on your site (such as scrubbers or filters)
- install sealed transfer (vapour balance) systems
- use sub-surface filling via (anti-syphon) filling pipes extended to the bottom of the container
- use floating roof tanks and bladder roof tanks
- use tank vent systems that minimise breathing losses, for example pressure or vacuum valves, and fit knock-out pots where necessary

If VOCs are released on your site, you must counter the release with techniques like adsorption (using a substance like a solid or liquid to absorb another substance, like a liquid or gas) or condensation (cooling or compressing a liquid to its saturation point) to capture the VOCs.

You must also prevent vapour and fluid emissions by:

- managing inventories
- preventing leaks from any pipework or fluid transport systems
- using white paint, insulation and active temperature controls to reduce the temperature in any storage tanks

The Environment Agency may include further specific steps that you must take in your permit.

Odour

You must prevent or, where that is not possible, minimise odour if you have a waste, mining waste or installation permit. To do this you must use all appropriate measures, normally including:

- restricting raw materials that are likely to cause odour, like putrescible or already putrid biodegradable waste
- minimising quantities and storage times for odorous or potentially odorous materials

- managing materials and processes in ways which minimise the production of odorous chemicals
- working within the effective operational capacity of your site
- providing effective containment and abatement for odorous materials and activities

You must respond effectively and proportionately to any process monitoring which indicates a problem, or reports from the community of odour pollution.

Read the [H4 odour guidance](https://www.gov.uk/government/publications/environmental-permitting-h4-odour-management) (<https://www.gov.uk/government/publications/environmental-permitting-h4-odour-management>) for detailed advice on how to manage odour.

Odour management plan

You must write an odour management plan that explains how you will prevent or minimise odour if your site causes odour pollution, or if you carry out:

- landfilling of biodegradable waste
- household, commercial and industrial waste transfer station activities
- materials recycling and handle odorous inputs or reject streams (or both)
- composting in open windrows
- composting in vessels
- mechanical biological treatment
- sewage sludge treatment
- clinical waste treatment
- animal carcass incineration
- mobile plant activities for landspreading, treatment of land for land reclamation, restoration or improvement and landspreading of sewage sludge
- anaerobic digestion
- mobile plant activities for the treatment of waste soils and contaminated material, substances or products manufacture, use or recovery of compounds containing sulphur, ammonia, amines and amides, aromatic compounds, styrene, pyridine and esters
- intensive farming
- abattoirs and rendering operations

- food production involving any form of cooking or heating and brewing
- refinery activities
- distilling or heating of tar or bitumen

If you carry out your operation inside a building you will still need to produce an odour management plan.

You must provide an odour management plan if the Environment Agency asks you to. They may do this:

- during pre-application discussions
- during the determination of your permit application
- during the process of varying a permit
- at any point during the lifetime of your permit if you cause odour pollution but do not already have an odour management plan

If you are unsure whether you need to submit an odour management plan, please discuss this with the Environment Agency before you submit your permit application.

You can use the [H4 odour guidance](https://www.gov.uk/government/publications/environmental-permitting-h4-odour-management) (<https://www.gov.uk/government/publications/environmental-permitting-h4-odour-management>) to help you decide what to include in your plan.

The Environment Agency can send you a template odour management plan to help you include all the correct information. Email odourteam@environment-agency.gov.uk.

Bioaerosol control

You should consider the methods described for dust management.

You must also ensure that the process or abatement systems (or both) are managed within optimal limits to ensure emissions are reduced.

Noise and vibration management plan

When applying for a permit the Environment Agency may ask you to submit a noise and vibration management plan if:

- we think there may be a risk of noise and vibration pollution beyond the site boundary
- you have done a [noise impact assessment](https://www.gov.uk/guidance/risk-assessments-for-your-environmental-) (<https://www.gov.uk/guidance/risk-assessments-for-your-environmental->

[permit#noise](#)) as part of your risk assessment

You must consider the findings from any noise impact assessment you do as part of your risk assessment.

We may also ask you to submit a noise and vibration management plan after we have issued your permit if you cause noise or vibration pollution beyond the site boundary, and either of these apply. You:

- have not already done a noise impact assessment
- do not already have a noise and vibration management plan

You must produce a noise and vibration management plan following the guidance in [Noise and vibration management: environmental permits](https://www.gov.uk/government/publications/noise-and-vibration-management-environmental-permits) (<https://www.gov.uk/government/publications/noise-and-vibration-management-environmental-permits>).

Pest management plan

If you have a waste, mining waste or installation permit and your activity causes pests (such as scavenging animals like birds or flies) you must control them by:

- carrying out regular inspections
- securing and removing waste that attracts scavengers or flies
- employing professional pest controllers
- using deterrent methods, such as scaring
- netting

You must write a pest management plan explaining how you'll prevent or minimise pests if your risk assessment shows that your operation is likely to cause pests.

If you're applying for a bespoke permit which involves the treatment or storage of biodegradable waste, the Environment Agency may ask you to submit a pest management plan with your application.

If you are unsure whether you need to submit a pest management plan, discuss this with the Environment Agency before you submit your permit application.

If you do not already have a pest management plan and your operation causes pests, the Environment Agency may ask you to submit a plan to them.

The Environment Agency can send you a template pest management plan to help you include all the correct information. Email odourteam@environment-agency.gov.uk.

Review and update plans and procedures to control emissions

Any plans or procedures about how you prevent or minimise emissions, including odour, bioaerosols, noise, vibration and pests, are part of your management system. You must review these if your circumstances change, for example if:

- you receive complaints
- you exceed the emission limits in your permit
- you introduce activities that could create more emissions
- the environment you' re operating in changes, for example if a school or residential development is built nearby

The Environment Agency may also agree further procedures with you if there' s a problem at your site.

If you exceed the emission limits in your permit you must submit a notification to the Environment Agency. Give details of the emission breach and the measures you have taken to ensure limits are controlled.

Monitoring your emissions

Your permit may say what monitoring you need to do to make sure you are not exceeding any limits in your permit, or to check emissions from your site to make sure you' re not causing pollution, or to take action if you are.

You may need to monitor:

- pollutants within a water discharge activity or groundwater activity, such as ammoniacal nitrogen in sewage discharge
- groundwater around a discharge area to check it' s not being polluted by your site
- pollutants in an air emission, such as sulphur dioxide from a chimney
- bioaerosols from open sources or stacks to ensure the agreed mitigation measures are effective

You should use equipment, staff, laboratories and systems that are certified or accredited (as appropriate) under the Monitoring Certification Scheme (MCERTS) for monitoring emissions to air, land and water, unless otherwise agreed in writing by the Environment Agency.

Read the:

- [MCERTS guidance](https://www.gov.uk/government/collections/monitoring-emissions-to-air-land-and-water-mcerts) (<https://www.gov.uk/government/collections/monitoring-emissions-to-air-land-and-water-mcerts>) to find equipment, staff, laboratories and systems that are MCERTS certified or accredited
- guidance for [Water companies: operator self monitoring environmental permits](https://www.gov.uk/government/publications/water-companies-operator-self-monitoring-osm-environmental-permits) (<https://www.gov.uk/government/publications/water-companies-operator-self-monitoring-osm-environmental-permits>)
- guidance on [Waste water treatment works: treatment, monitoring and compliance limits](https://www.gov.uk/government/publications/waste-water-treatment-works-treatment-monitoring-and-compliance-limits) (<https://www.gov.uk/government/publications/waste-water-treatment-works-treatment-monitoring-and-compliance-limits>)
- guidance on [M9 environmental monitoring of bioaerosols at regulated facilities](https://www.gov.uk/government/publications/m9-environmental-monitoring-of-bioaerosols-at-regulated-facilities) (<https://www.gov.uk/government/publications/m9-environmental-monitoring-of-bioaerosols-at-regulated-facilities>)

Access to monitoring points

It must be possible to access the locations you use for monitoring.

For example, it must be possible to remove manhole covers. Use lightweight manhole covers if possible. If you need to use a heavy duty cover, it must still be possible to access the monitoring point. You could:

- use a sliding manhole cover that can be easily removed
- use a heavy duty cover that has a window that you can see the monitoring location through
- allow access to stack sampling portals

Monitoring records

Keep records of the following in your management system:

- the methods you use to carry out checks
- the equipment you use in your checks and how it's calibrated
- any maintenance required to enable your checks
- the frequency of your checks

Borehole monitoring

If you operate a groundwater activity (an activity which includes a discharge to the ground or groundwater) your permit may require you to install boreholes to monitor the underlying groundwater for emissions from your site.

You'll need to employ a consultant to tell you how to design and construct groundwater monitoring boreholes that are appropriate to your site activity.

You must restore or replace any monitoring borehole that becomes blocked, stops working, or which you cannot access at the surface. You must include details of any maintenance you carry out on boreholes in your management system.

Bioaerosol monitoring

You must follow the guidance in [M9 environmental monitoring of bioaerosols at regulated facilities](https://www.gov.uk/government/publications/m9-environmental-monitoring-of-bioaerosols-at-regulated-facilities) (<https://www.gov.uk/government/publications/m9-environmental-monitoring-of-bioaerosols-at-regulated-facilities>).

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