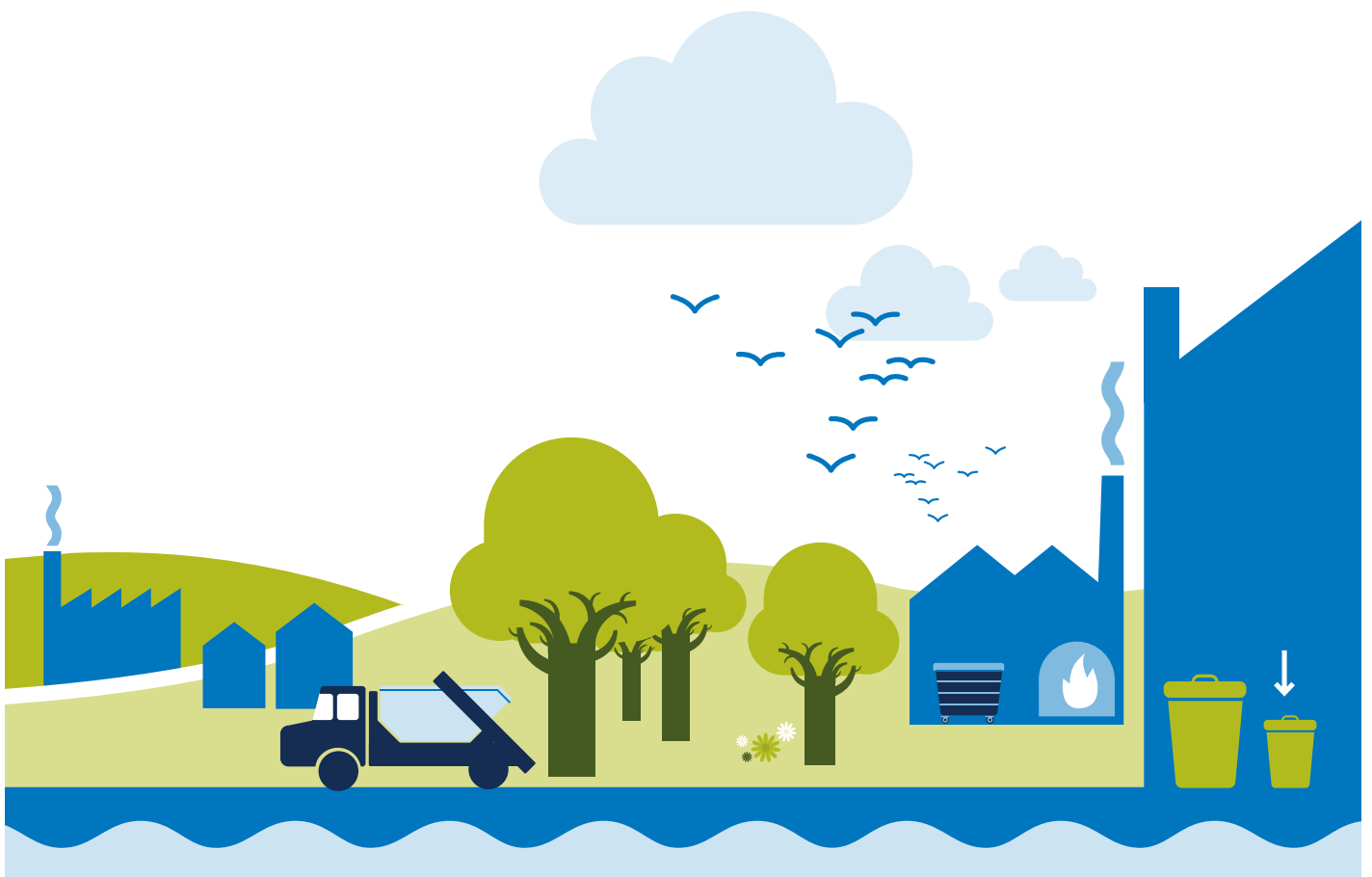


How to comply with your environmental permit

Getting the basics right



We are the Environment Agency. It's our job to look after your environment and make it a better place – for you, and for future generations. Your environment is the air you breathe, the water you drink and the ground you walk on. Working with business, Government and society as a whole, we are making your environment cleaner and healthier.

The Environment Agency. Out there, making your environment a better place.

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Introduction

This technical guidance note is about preventing pollution. It describes the standards and measures we expect businesses to take in order to control the risk of pollution to air, land and water from the most frequent situations in waste management and process industry.

Standard permits are available for many activities. This guidance should cover most of the standards and measures that apply to them. It also covers the basic standards and measures that apply to all other activities¹ subject to the Environmental Permitting Regulations (EPR). For some activities there are additional, technical guidance notes (TGNs). A list of these sector-specific guidance TGNs is given in Annex 1.

While we have taken care to avoid any conflict between the documents, should there be any doubt, the TGN that applies to your sector takes precedence over this document.

Sometimes, particularly difficult problems arise on issues such as odour or noise. It may then be necessary to consult the “horizontal” guidance that gives in depth information for particular topics. Annex 1 lists these also.

¹ This guidance does not apply to intensive livestock permits which are covered by EPR 6.09 – (see Annex 1).

The guidance fits together like this:

Getting the Basics Right

How to comply with your environmental permit applies to everyone



How to Comply for certain activities

Supplementary guidance for specific activities (see Annex 1)



Horizontal Guidance

In depth guidance on subjects such as risk assessment, noise and odour

Introduction (continued)

Modern permits and standard rules describe the objectives (or outcomes) that we require – what we want you to achieve – but they do not normally tell you how to achieve them. They give you a degree of flexibility. Each section of this guidance gives the typical permit condition with which you must comply and then provides guidance on how to comply. References to figures and tables in the permit conditions refer to the figures and tables you will find in your permit.

Where a condition requires you to take appropriate measures to secure a particular objective, we will expect you to use, at least, the measures described in the guidance which are appropriate for meeting the objective. You may have described the measures you propose in your application or in a relevant management plan but further measures will be necessary if the objectives are not met.

The measures set out in this guidance and in the TGNs may not all be appropriate for a particular circumstance, and you may implement equivalent measures that achieve the same objective. In those cases where they are mandatory this is stated.

For standard permits the appropriate measures must be in place when the permit is issued. For bespoke permits, we would expect all new plant to be designed and built to the required standards. Where regulatory controls are being applied to existing plant we would expect plant to be upgraded to meet the standards where necessary, and we set improvement conditions with a timescale. However in some cases, you can submit a cost benefit analysis to demonstrate that upgrading would not be justified, and we may accept this.

When applying for a bespoke permit the application form asks you to explain how you will comply with the standards in the technical guidance. The key measures in this technical guidance that you should specifically address in your application are identified by a dotted underline.

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1

Managing your activities

- General management
- Technical competence schemes
- Accident management plan

General management



Typical permit condition or rule

(Typically, condition 1.1.1 on the permit)

The activities shall be managed and operated:

- In accordance with a management system which identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances and closure and those drawn to your attention as a result of complaints; and
- Using sufficient persons who are suitably competent in respect of their responsibilities in connection with the operation of the activities.

Typical permit condition or rule

(Typically, condition 1.1.2 on the permit)

Records demonstrating compliance with condition 1.1.1 shall be maintained.

Typical permit condition or rule

(Typically, condition 1.1.3 on the permit)

Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

How to comply

Your management system must identify the risks that your activities pose to the environment. It will cover what you need to do to prevent or minimise these risks and to make sure that you comply with the permit. You must then manage your activities in accordance with your management system. Your management system must be written down.

To keep your management system up to date you should review its content and associated accident management plans, site closure plans etc. at least once every 4 years. You should also review it if there is a significant change such as a company take-over, major re-structure or expansion of the activities. You should review the relevant parts following an accident or if you find a non compliance, in an audit for example, in order to find the root cause. We too will be looking to identify the management system failure in these cases.

You also should regularly audit your own performance against your management system.

For larger and more complex activities:

- You will normally have a formal environmental management system (EMS).
- We strongly support certification to the ISO 14001 standard, registration under EMAS (EC Eco Management and Audit Scheme) (OJ L114, 24/04/01) or implementation through BS 8555 Phase (1-5).

Remember though, that your permit requires you to achieve certain environmental outcomes that may extend beyond the scope of ISO 14001 or EMAS registration. Registration to ISO 14001 or EMAS, while valuable in themselves, do not guarantee permit compliance.

For smaller and simpler activities:

A basic management system may be sufficient, rather than an independently certified EMS. www.envirowise.gov.uk is also a useful source of help.

We are also developing management tools that will further help you to ensure that you remain in compliance. (See Annex 1).

General management (continued)

Operations

The reference to “operations” in 1.1.1(a) means that you must consider how to minimise the environmental risks and impact of the normal running of the activities. Normal running includes start-ups, shut-downs, and variations in materials or waste received etc. You should have contingency plans that ensure a minimum impact on the environment in the case of breakdown, accident, enforced shutdown etc.

Maintenance

Poor maintenance is a common cause of environmental incidents. Where the failure of plant or infrastructure (e.g. hard-standing, bunds etc.) could increase emissions to the environment, you must:

- Carry out a programme of Planned Preventative Maintenance (PPM), rather than waiting for equipment to fail; and
- Follow the inspection and maintenance schedules that the manufacturer recommends, or write down your justification for following any other schedule.

Incidents and non-conformances

Even when “incidents and non-conformances” occur, you are responsible for the environmental performance of the installation and for achieving compliance with the permit. Incidents that require investigation include any malfunction, breakdown or failure of plant, equipment or techniques and any near misses. You should be able to cope with abnormal operation and return the activity to normal operation.

You and/or your staff must be able to:

- Detect abnormal operation and investigate the causes.
- Assess the information and decide what to do.
- In the short-term, get back to normal operation.
- In the long-term take steps to make sure the problem doesn’t happen again.
- Where appropriate, make sure that the public would know what to do if a problem arises. (You are responsible for minimising the environmental impact of your activities and for responding to the concerns of the local community.)
- Have a complaints system and do whatever is necessary to prevent, or where that is not possible to minimise, the causes.
- Display a notice at or near the site entrance telling the public about the nature of the site and who they can contact for further information or to notify a concern. It should be easily readable from outside the site in daylight hours and should include:
 - The permit holder’s name (company name at least).
 - The operator’s name if different (company name at least).
 - An emergency contact name and the licence holder and/or operator’s telephone number.
 - A statement that the site is permitted by the Environment Agency.
 - The permit number.
 - Environment Agency national numbers, 0870 8506506 and 0800 807060 (incident hotline), (or any other number subsequently notified in writing by the Environment Agency).

General management (continued)

Sufficient persons who are suitably competent

You must have enough competent staff to manage and operate your activities without causing pollution.

Staff should have clearly defined roles and responsibilities. You should write down the skills required for each post and keep records of how each individual in that post has gained those skills and how they are kept up to date with, for example, refresher training. Where appropriate, you should keep written instructions for the work as well. We will refer to these records and instructions if we need to investigate an incident. You can demonstrate competence in various ways:

- Academic qualifications e.g. a relevant degree.
- Professional qualifications e.g. membership of an appropriate institution.
- Vocational qualifications e.g. NVQs.
- External training qualification/certification eg certificate of technical competence.
- Attendance at external or in-house training courses.
- Those with approved training to cascade that training to other staff.
- Mentoring as part of “on the job” training.
- Experience (as long as there is evidence that it is kept up to date).

You should also ensure that any contractors have the knowledge and skills they need.

Site Security

You should have site security measures in place to prevent unauthorised access to the site, as far as practicable.

However, it is important to be clear about whether and why security is important at a given site. It may, for example, be to prevent vandalism which could result in polluting liquids being released from tanks or drums or it may be to prevent unauthorised deposit of waste at an waste site.

What is appropriate will depend upon the risks posed by the activity itself and the particular location. In a high risk area, for example an urban area where there are pollution risks outside the buildings such as drums or tanks of potentially polluting liquids, the following would be appropriate measures:

- Security checks or supervision of people entering the site during normal working hours.
- Gates that are closed and locked outside normal operating hours to prevent people walking or driving onto the site.
- Two metre security palisade fences around the site perimeter.
- Signs warning people not to enter the site.

In very high risk situations consider out of hours security staff and security cameras. You may justify alternative methods to suit your particular circumstance.

Where an EPR permit is issued for an activity on a nuclear licensed site, security arrangements under other legislation take precedence.

General management (continued)

Permit surrender

When you come to apply to surrender your permit, you will need to be able to show that the site has been returned to a satisfactory state (paragraphs 6.26 to 6.33 of the Defra Environmental Permitting Guidance explain what 'satisfactory state' means).

Your management system will need to record details of how the land under the site was thoroughly protected at all times between the date the permit was issued (or when operations started), until the end of operations under the permit. You could do this, for example, by recording the use and maintenance of impermeable surfacing and leak-tight drains. If the land was contaminated before your permit began, we strongly advise that you to record details of this contamination. You should also record how you have cleaned up any incidents/spillages as they occur.

We will consider all of these records when you apply to surrender your permit. During compliance checks we will check the records are being collated properly. Section 4, Records and the H5 Site Condition Report Guidance (see Annex 1) give further information.

Records that demonstrate your management system

You must keep reliable records. These are an essential part of your management system.

Personnel competency records, for example, should include the date and type of training, the training provider and how the skills and training received meet the requirements. Section 4 of the permit tells you how to keep the records. The manner in which records are held is covered by other conditions in the permit or within particular activity guidance.

Display your permit

Staff or contractors whose work may have an impact on the environment must be able easily to see a copy of the permit or standard rules, displayed near where they work.

They should have ready access to the information they need to ensure that they act in a way to comply with the permit. This could be access to this document or other instructions more targeted to their responsibilities.

Technical competence schemes – Waste activities only



Typical permit condition or rule (Typically, condition 1.1.4 on the permit)

The operator shall comply with the requirements of an approved competence scheme or shall hold an appropriate certificate of technical competence or other approval, issued by the Agency.

How to comply

You must demonstrate technical competence by satisfying one of the accepted industry schemes approved by Defra. If you already hold a certificate of technical competence, or have previously successfully completed an Agency assessment which is still valid, you will not be expected to get further qualifications.

All technically competent individuals will have to show that they continue to be competent over time. One way of demonstrating this will be to pass an assessment every two years. Other methods for demonstrating continuing competence may be approved as new technical competence schemes are developed.

Accident management plan



Typical permit condition or rule (Typically, condition 1.2 on the permit)

You must:

- Maintain and implement an accident management plan.
- Review and record at least every 4 years or as soon as practicable after an accident, (whichever is the earlier) whether changes to the plan need to be made.
- Make any appropriate changes to the plan identified by a review.

How to comply

You must have an accident management plan and implement it if an accident occurs. You will have to review this plan at least every four years. As soon as practicable after an accident you will have to analyse the reasons why the accident happened and whether your response was adequate. You will have to change the plan if necessary.

To produce an accident management plan, you should:

- Identify events or failures that could damage the environment, for example flooding; see 'A'.
- Assess how likely they are to happen and the potential environmental consequences; see 'B'.
- Take steps to minimise both the potential causes and consequences of accidents; see 'C'.

For the simpler activities, the easiest way to do this is to follow the risk assessment for accidents in Part 1 of H1 Environmental Risk Assessment (see Annex 1) and describe how you will manage the risks. For the larger or more complex activities in Schedule 1 of the Environmental Permitting Regulations you would normally be expected to carry out a HAZOP study and for COMAH¹ activities you should follow the COMAH guidance www.hse.gov.uk/pubns/ (see Annex 1).

A. Identify events or failures that could damage the environment

Hazards you need to think about include:

- Transferring substances (e.g. loading or unloading vessels).
- Overfilling vessels.
- Plant or equipment failure (e.g. over-pressure of vessels and pipework, blocked drains).
- Containment failure (e.g. bund or overfilled drainage sumps, loss of landfill gas or leachate).
- Fires or failure to contain firewaters.
- Making the wrong connections in drains or other systems.
- Incompatible substances coming into contact.
- Unwanted reactions and/or runaway reactions.
- Emission of an effluent before adequately checking its composition.
- Vandalism.
- Flooding.

This is not a comprehensive list. You also need to work out what other situations are relevant to you. In particular there may be risks specific to your industry that should be considered.

¹ Control of Major Accident Hazards Regulations 1999 (COMAH).

Accident management plan (continued)

B. Assess how likely they are to happen and the potential environmental consequences

This can be viewed as addressing four questions:

- Probability: how often is this likely to occur?
Several times a year? Once every few years?
- What gets out and how much?
- Where would it go – ie what or whom would be affected?
The public for example? Or an ecologically important site?
And how would it get there – by air, along a ditch, etc?
- What would the consequences be?

The level of assessment will depend on the scale of the severity of the consequences and the complexity of the situation. In general it is more important to identify what you need to do – and then do it – rather than performing in depth analyses of, for example, how far an oil spill may spread into the soil.

C. Action to minimise the potential causes and consequences of accidents:

You should take action to minimise the risks you have identified. As a minimum you should:

- Keep a list of substances that would harm the environment if they were to escape. Remember that many apparently innocuous substances or non-hazardous wastes can be environmentally damaging (e.g. a tanker of spilled milk could destroy a river's ecosystem).
- Check raw materials and wastes for compatibility with other substances with which they may come into contact.
- Store raw materials, products and wastes properly.
- Have barriers to prevent vehicles from damaging equipment.
- Have appropriate primary and secondary containment e.g. bunds and building containment.
- Prevent overfilling of tanks and drainage sumps by level measurement, separate high-level alarms or cut-off, and batch metering.
- Install security systems to minimise the risk of unauthorised access.
- Keep a log of all incidents and near-misses.

- Have clear instructions on how each accident scenario should be managed. Should a given spill be contained or dispersed, for example? Should you put a fire out or let it burn? Who is responsible for isolating drains, or alerting emergency services?
- Have appropriate equipment to limit the consequences of an accident, such as oil spillage equipment.
- Check the composition of the contents of a bund or other container before disposal.
- To prevent fires and minimise their impact you should:
 - Store incompatible materials apart.
 - Limit the size of stockpiles of combustible materials and surround them with firebreaks.
 - Use firebreaks wide enough (at least four metres) for emergency vehicles to get through.
 - Use wider firebreaks to protect sensitive areas such as occupied buildings, watercourses and public infrastructure such as power lines, transformers, roads and railways.
 - Not store materials against the site boundary.
 - Store contaminated firewater on-site, where practicable.

D. If an accident happens

If an accident causes damage to the environment, or risks doing so, we expect you to:

- Immediately do what it says in the accident management plan.
- Do whatever else is necessary to minimise the environmental consequences.
- Find out why the accident happened and take action to stop it happening again.
- Review the plan.
- Tell us.

2 Operations

- Permitted activities
- Waste acceptance

Permitted activities



Typical permit condition or rule (Typically, condition 2.1 on the permit)

- The operator is authorised to carry out the activities specified in Schedule 1 table S1.1 (the “activities”).

Typical permit condition or rule (Typically, condition 2.3.1 on the permit)

- The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in Schedule 1 table S1.2 unless otherwise agreed in writing by the Agency.
- If notified by the Agency that the activities are giving rise to pollution, the operator shall submit to the Agency for approval within the period specified, a revision of any plan specified in Schedule 1, table S1.2 or otherwise required under this permit and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Agency.’

How to comply

Regulations list many different activities but you are only permitted to carry out those listed in your permit. However, you may carry out other activities on the site provided that:

- They do not need a permit under any legislation; or
- They are exempt from the requirement to have a permit, for example because they are carried out on a small scale; or
- You have a separate permit issued by the Environment Agency or by another regulator such as the local authority.

Table S1.2 of Schedule 1 of your permit will refer to selected documents that you supplied with your application for a permit – for example your management plans or procedures. We expect you to operate in accordance with these. However, if a pollution problem arises we may require you to revise your plans and procedures.

Waste acceptance – Activities taking in waste only



Typical permit condition or rule (Typically, condition 2.3.2 on the permit)

Waste shall only be accepted if:

- It is of a type and quantity listed in Schedule X Table X1, X2 etc; and
- It conforms to the description in the documentation supplied by the producer and holder.

How to comply

The following guidance applies if you only accept low risk non-hazardous waste such as municipal waste. If you accept higher risk waste, including any form of hazardous waste, you should ensure you meet the additional, more detailed standards in EPR 5.06 for waste pre-acceptance, acceptance and storage (see Annex 1).

You should check wastes when they arrive and accept them only if your permit allows them and if they meet the description given in the waste transfer note or other documentation.¹

The table will usually use the waste definitions given in the List Of Waste Regulations (known as the EWC codes). You must not accept any wastes not listed in your permit. The table will be left blank or say “none” if no wastes are permitted, even as a feedstock. We may restrict permitted wastes by, for example, limiting the quantity received, stored or treated or their composition.

Your procedures for checking the wastes should include:

- The location where checking will be carried out.
- The extent of visual checks and any sampling and analysis required.

Your procedures should be proportionate to the environmental risk caused if the waste is not as described. This may be because the whole load is something different or because the load is mostly what it should be, but contains a small proportion of some other material (commonly known as ‘contraries’). You need to check all wastes because the presence of ‘contraries’ is a common cause of environmental incidents.

Despite these control measures, you may find ‘contraries’ in a consignment that has already been accepted onto site. You should be prepared for this. You should identify and quarantine the ‘contraries’ before sending them to an authorised site as soon as practicable. When you find ‘contraries’ you should investigate the cause. To stop it happening again, you might, for example, contact and work with the producer to prevent reoccurrence or send the ‘contraries’ back to the producer.

Where your procedures for checking the waste and the documentation identify waste that cannot be accepted onto site you should make a record of this.

You must keep records of the waste received at the site, including the quantity, characteristics, origin, delivery date and the identity of the producer. Section 4 of the permit describes how to keep records.

¹ If you transfer non-hazardous waste between your own sites and there is no change in ownership, we will expect the information given in other documentation and subsequently held on site as a record of those transactions to be of the same standard as that required for a duty of care waste transfer note. For hazardous wastes the notification, consignment, records and returns requirements of the Hazardous Waste Regulations must be met for such internal movements.

3

Emissions & monitoring

- Point source emissions to air, water & land
- Fugitive or diffuse emissions
- Odour
- Noise & vibration
- Pest control
- Monitoring

Point source emissions to air, water & land



Typical permit condition or rule
(Typically, condition 3.1, 3.1.1 on the permit)

Option A

There shall be no point source emissions to air, water or land.

Option B

There shall be no point source emissions to air, water or land, except from the sources and emission points listed in Schedule x.

Option C

The limits given in Schedule x, tables y.y, and z.z. shall not be exceeded.

How to comply

This section only applies if you have point source emissions.

A point source emission is localised in origin (e.g. exhaust gas from a boiler stack, a 'breather' vent from a storage tank).

Emissions to air and water

The sources and emission points will be listed in a table. By default any emissions not listed in the table are considered fugitive emissions.

You must meet the emission limit values given in the permit.

Point source emissions to air and water are more common in IPPC Directive activities. The technical measures that you should employ to prevent or minimise them are given in Annex 3. However, standard rules permits and permits for waste activities may sometimes also permit point source emissions. **You should refer to Annex 3 if you have point source releases to air or water even if you are not subject to IPPC.**

For activities subject to the IPPC Directive, emission limit values will be based on the benchmark emission standards for your industry sector. A list of the guidance notes containing the benchmarks is given in Annex 1.

Emissions to land

In general, there should be no direct or indirect releases to groundwater.

If there are releases to groundwater and they are to continue, the requirements of the Groundwater Regulations must be complied with. A link to guidance on these requirements can be found in Annex 1.



Fugitive or diffuse emissions

Typical permit condition or rule (Typically, condition 3.2 on the permit)

Fugitive emissions of substances (excluding odour, noise and vibration) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including those specified in table y below and any approved fugitive emissions management plan, have been taken to prevent or, where that is not practicable, to minimise, those emissions.

The operator shall:

- If notified by the Agency that the activities are giving rise to pollution, submit to the Agency for approval within the period specified, a fugitive emissions management plan.
- Implement the approved fugitive emissions management plan, from the date of approval, unless otherwise agreed in writing by the Agency.

How to comply

“Fugitive emission” and “pollution” are both defined at the back of your permit. Fugitive emissions include dust, volatile organic compounds (VOCs), mud, litter and fugitive releases to water and ground. Where the requirements for a site or for a sector are simple we may list them within the permit, for example as described in Table 3.2 below:

Fine dusts, fumes and volatile organic compounds can lead to serious health impacts and fugitive leaks to ground or water can have serious effects on water supplies and aquatic ecosystems. You need to prevent or minimise these, no matter how near or far people or other receptors may be.

Other pollutants, such as coarse dust, mud and litter may be only a localised nuisance. However, you do not have the right to cause pollution or nuisance outside your site due to your activities. Your neighbours have a right to expect that your activities will not detract from their quality of life. They have a right to expect that their environment will be free from emissions caused by your activities either on a continuous basis or at frequent intervals.

While there may be no problem at the moment, if circumstances change, for example development occurs around your site such that your activities then affect people outside the site, you will have to take action to prevent or minimise those problems.

Table 3.2 – Appropriate measures for fugitive emissions

Measures

For all wastes, apart from those specified in Schedule X Table Xyy (“specified” waste):

- All bulking, transfer or treatment of waste shall be carried out inside a building.
 - All waste shall be stored in a building or within a secure container.
 - All waste shall be stored and treated on an impermeable surface with sealed drainage system.
- “Specified” waste shall be stored and treated on hard standing or on an impermeable surface with sealed drainage system.

Fugitive or diffuse emissions (continued)

If not specified in your permit, the measures you decide to use will depend on your industry sector/regime and your individual circumstances. We will expect you to consider the options on the basis of balancing costs and environmental benefits. The measures you decide to use are up to you, but they will have to meet the objective of the condition.

If there is potential for a significant release beyond your site boundary you should have a written fugitive emissions management plan, showing what measures you will use and how you will respond to prevent or minimise the emissions. The easiest way to do this is to follow the risk assessment for fugitive emissions in Part 1 of H1 Environmental Risk Assessment (see Annex 1) and describe how you will manage the risks. You may need to update this plan with further measures to ensure that the condition continues to be met.

If a serious issue cannot be controlled immediately it may be necessary to reduce or stop your activities until satisfactory controls are in place or the issue is resolved.

The following are typical measures that you should do, where appropriate.

Dust, mud and litter

- Carry out operations inside buildings.
- Avoid outdoor or uncovered stockpiles.
- Where you must use outdoor stockpiles, control them by means of sprays, binders, windbreaks, careful siting in relation to sensitive receptors, controlling the moisture content of the material delivered and orientation of long stockpiles in the direction of the prevailing wind.
- Design to minimise handling operations.
- Erect litter fences around the site so you can catch it.
- Enclose conveyors and minimise drops, or use pneumatic or screw conveying.
- Install filters to vents on silos, building extractors and conveying systems.

- Surface roadways.
- Plant grass or trees on open ground where appropriate (hydro-seeding can rapidly establish vegetation on waste tips, slag heaps or other apparently infertile ground).
- Cover vehicles, skips and vessels.
- Have rigorous maintenance standards.
- Minimise points of access from the public highway.
- Make sure vehicles stay on paved areas.
- Regularly clean and dampen roadways and vehicle wheels.
- Use water-filled troughs to slow trucks, wash wheels and keep roadways damp.
- Clean spillages with vacuum cleaners rather than washing down.
- Avoid certain activities when there are high winds.
- Clear litter and mud at the end of each working day, unless it is impractical or unsafe to do so.

Fine particulate and fumes

Controls for fine particulate and fumes, particularly from combustion processes, are given in the appropriate activity-specific guidance (see Annex 1).

Volatile organic compounds (VOCs)

- Enclose open vessels and fit abatement equipment to vents.
- 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.
- Treat specific releases (by techniques such as adsorption or condensation).
- Use tank vent systems that minimise breathing losses (e.g. the use of pressure/vacuum valves). Fit knock-out pots and appropriate abatement equipment where necessary.
- Inventory management.
- Reduce leakage from pipework or fluid transport systems.
- Use white paint, insulation and active temperature control to reduce the temperature in storage tanks.

Fugitive or diffuse emissions (continued)

Typical permit condition or rule (Typically, condition 3.2.3 on the permit)

All liquids, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or, where that is not practicable, to minimise, leakage and spillage from the primary container.

Fugitive emissions to surface water, sewer and groundwater

For detailed design standards on bunds, surfacing and storage refer to the guidance in Annex 1.

For **subsurface structures**, you should:

- Establish and record the routing of all installation drains and subsurface pipework.
- Identify all sub-surface sumps and storage vessels.
- Engineer systems to minimise leakages from pipes and ensure swift detection if they do occur, particularly where hazardous substances (i.e. substances in List I or List II of the Groundwater Regulations) are involved.
- Provide secondary containment and/or leakage detection for sub-surface pipework, sumps and storage vessels.
- If secondary containment is not practicable then appropriate measures to prevent or minimise leakage might include:
 - Regular inspections to a written procedure.
 - Ensuring that any leakage is detected e.g. by monitoring boreholes or sampling adjacent watercourses.

All **sumps** (other than those within bunds – see below) should be:

- Impermeable and resistant to stored materials.
- Looked at regularly and any contents removed after checking for contamination.
- Where not frequently inspected, fitted with a high level probe and alarm.
- Regularly inspected for their condition (normally visual, but extending to hydraulic testing where structural integrity is in doubt).

For **surfacing**, you should:

- Make sure that surfacing and containment or drainage facilities are adequate for all operational areas, taking into consideration collection capacities, surface thicknesses, strength/reinforcement, falls, materials of construction, permeability, resistance to chemical attack, and inspection and maintenance procedures.
- Have an inspection and maintenance programme for impervious surfaces and containment facilities.
- Unless the risk is negligible, have improvement plans in place where operational areas do not already have:
 - An impervious surface.
 - Spill containment kerbs.
 - Sealed construction joints.
 - Connection to a sealed drainage system.

Fugitive or diffuse emissions (continued)

All above-ground tanks containing liquids whose spillage could be harmful to the environment should be banded.

Bands should:

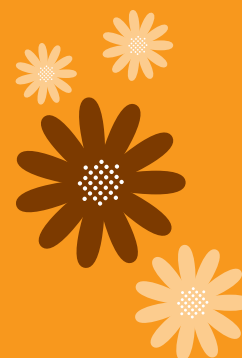
- Be impermeable and resistant to the stored materials.
- Have no outlet (that is, no drains or taps) and drain to a blind collection point.
- Have pipework routed within banded areas with no penetration of contained surfaces.
- Be designed to catch leaks from tanks or fittings.
- Have a capacity greater than 110 percent of the largest tank or 25 percent of the total tankage, whichever is the larger.
- Be looked at regularly and any contents removed after checking for contamination.
- Be fitted with a high-level probe and an alarm, where not frequently inspected.
- Have tanker connection points within the band where possible (otherwise adequate containment should be provided at the connection point).
- Be regularly inspected for their condition (normally visual, but extending to hydraulic testing where structural integrity is in doubt).

Storage areas for IBCs, drums, bags, etc., should be designed and operated to minimise the risk of releases to the environment. In particular:

- Where spillage of any stored substance could be harmful to the environment, the area should be appropriately kerbed or banded.
- Appropriate storage facilities should be provided for substances with special requirements (e.g. flammable, sensitive to heat or light) and formal arrangements should be in hand to keep separate packages containing incompatible substances (both “pure” and waste).
- Storage areas should be located away from watercourses and sensitive boundaries, (e.g. those with public access) and should be protected against vandalism.
- Undercover storage should be considered where pollution can be significantly reduced by so doing.
- Storage areas should have appropriate signs and notices and be clearly marked-out, and all containers and packages should be clearly labelled.
- The maximum storage capacity of storage areas should be stated and not exceeded, and the maximum storage period for containers should be specified and adhered to.
- Containers should be stored with lids, caps and valves secured and in place - and this also applies to emptied containers.
- All stocks of containers, drums and small packages should be regularly inspected (at least weekly).
- Procedures should be in place to deal with damaged or leaking containers.

General, in the event that structures are designed to work without secondary containment (such as lagoons and concrete effluent treatment plants) we expect maintenance, regular inspections etc to a level that will provide equivalent protection.

Odour



Typical conditions or rules (Typically, condition 3.3.1 on the permit)

Emissions from the activities shall be free from odour at levels likely to cause annoyance outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures, including those specified in any approved odour management plan.

The operator shall:

- If notified by the Agency that the activities are giving rise to annoyance outside the site due to odour, submit to the Agency for approval within the period specified, an odour management plan.
- Implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Agency.

How to comply

If there is a significant possibility that odour from your activities may cause annoyance/nuisance beyond your site boundary, you should have a written odour management plan. This should show what the sources and risk to receptors are, the measures you will employ and how you will respond to prevent or minimise the odour. The easiest way to do this is to follow the risk assessment for odour in Part 1 of the H1 Environmental Risk Assessment (see Annex 1) and describe how you will manage the risks. You may need to update this plan with further measures as necessary to ensure that the condition continues to be met. Activities for which odour is a key issue and should always have an odour management plan, are listed in Annex 2.

You do not have the right to cause odours outside your site due to your activities. Your neighbours do have a right to expect that your activities will not detract from their quality of life. They have a right to expect that their environment will be free from odours caused by your activities either on a continuous basis or at frequent intervals.

While there may be no problem at the moment, if circumstances change, for example development occurs around your site such that your activities then affect people outside the site, you will have to take action to prevent or minimise those problems.

Your activities may cause smells that may cause annoyance to people beyond your site boundary. It is up to you to prevent such emissions, or where that is not practical, to minimise them using appropriate measures. Unless already specified in your permit, the measures you decide to use will depend on your industry sector/regime and your individual circumstances.

There are a number of options available to control odour. We will expect you to balance the costs and environmental benefits. The measures you decide to use will have to meet the objective of the rule.

Odour (continued)

Appropriate measures to reduce odour include:

- Choosing raw materials that are less likely to cause odour problems.
- Cutting the quantities and storage times of biodegradable materials.
- Avoiding conditions which encourage anaerobic breakdown.
- Enclosing smelly materials in a building or vessels and extracting fumes with equipment such as scrubbers or bio-filters.
- Reducing temperatures and exposed surface areas.
- Reducing or stopping your activities that are causing the odour until either the circumstances have changed or other appropriate measures have been put in place to allow the operations to re-commence without nuisance.

Further measures specific to your sector may be found in the relevant activity-specific guidance note (see Annex 1).

Where you propose significant point source releases that may lead to odour nuisance/annoyance you will normally be expected to model them to demonstrate acceptable concentrations at the most sensitive receptors.

Further information on modelling can be found in the guidance note H4 Odour (see Annex 1).

We may impose the condition 'The emission from Point X shall not exceed Y odour units'. This sets a quantitative limit on an odorous emission from a specified source. It does not remove your responsibility for controlling odours from all other sources.

Noise & vibration



Typical permit condition or rule (Typically, condition 3.4.1 on the permit)

Emissions from the activities shall be free from noise and vibration at levels likely to cause annoyance outside the site, as perceived by an authorised officer of the Agency, unless the operator can show that he has used appropriate measures, including those specified in any approved noise and vibration management plan to prevent or where that is not practicable, to minimise, the noise and vibration; or

The (rating) level of noise emitted from the site (during normal operations/annual shutdown and maintenance) shall not exceed (X) dB, expressed as an LAeqT, between (hhmm) and (hhmm) Mon to Frid and (Y) dB at any other time, as measured or assessed on the (specified boundary/boundaries/location) of the site at (locations x,y,z) on plan reference Y attached to this permit. The locations shall be chosen and the measurements and assessment made according to BS4142:1997.

The provision for management plans is the same as for odour.

How to comply

If you are likely to cause any significant noise beyond your site boundary, you should have a written noise management plan. This should show what the sources and the risks to receptors are, the measures you will employ and how you will respond to prevent or minimise the noise. You may need to update this plan with further measures to ensure that the condition continues to be met.

The situation, and your responsibilities for controlling noise are very similar to those for controlling odour (see the previous section).

Appropriate measures to reduce/control noise include:

- Monitoring noise levels at different places and times to find where the problem is coming from.
- Maintaining equipment specifically to reduce noise levels, e.g. balancing fans and fixing loose covers.
- Enclosure or abatement – e.g. acoustic enclosures, silencers, keeping doors and other openings in buildings closed.
- Timing – e.g. avoiding noisy work during evenings and weekends.
- Siting away from sensitive receptors – e.g. of delivery or vehicle routes or noisy plant.
- Switching off plant, vehicles and ventilation units when not in use.
- Reducing or stopping your activities that are causing the noise until either the circumstances have changed or other appropriate measures have been put in place to allow the operations to re-commence without nuisance.

Noise & vibration (continued)

Guidance note H3 Noise and some of the activity-specific guidance notes give more guidance on noise assessment and control and how to draw up a noise management plan (see Annex 1).

Where we place a numerical limit, it applies only at the designated measurement points. It does not remove your responsibility for controlling noise from your activities at all other points outside the site boundary.

As a guide, annoyance becomes more likely where the resulting field rating level (LAR,TR) exceeds 50 dB by day and a facade rating level exceeds 45 dB by night (23:00 to 07:00). Where very low background levels prevail, site noise levels should not be significantly above the background and, if practicable, should be well below. If you are in an area covered by the Environmental Noise Regulations 2006, site noise levels should, as far as practicable, be less than an Lden value of 55 dB(A) or an Lnight value of 50 dB(A).

Sometimes ambient noise increases over time (creeping background). This increases the environmental value of noise abatement measures. Where this has been identified in discussions with ourselves or previously with the local authority, you must consider it when planning noise control techniques to maintain acceptable noise levels.

You may need to carry out noise surveys, measurements, investigations (e.g. on sound power levels of individual items of plant) or modelling to resolve more difficult problems.

Pest control – Activities liable to scavenging & infestation by pests



Typical permit condition or rule (Typically, condition 3.6.1 on the permit)

Scavenging animals, scavenging birds and other pests shall not cause nuisance, unless the operator has used appropriate measures to prevent or where that is not practicable, to minimise, such nuisance.

How to comply

Unless already specified in your standard rules, the 'appropriate measures' you decide to use will depend on your industry sector/regime and your individual circumstances. We will expect you to consider these options on the basis of balancing costs and environmental benefits. The measures you decide to use are up to you, but they will have to meet the objective of the rule.

Appropriate measures to prevent or control pests include:

- Regular inspections by nominated personnel.
- Isolation and securing/removal of wastes that are attracting scavengers.
- Use of pesticides.
- Use of rodenticides.
- Employing professional pest control contractors.
- Effective scaring or other deterrent methods.
- Netting.



Monitoring

Typical permit condition or rule (Typically, condition 3.5.1 to 3.5.4 on the permit)

The operator shall, unless otherwise agreed in writing by the Agency, undertake monitoring specified in the following tables in Schedule x of this permit:

- Point source emissions specified in tables Sxx, Sxx and Sxx;
- Surface water specified in table Sxx;
- Noise specified in table Sxx;
- Ambient air monitoring specified in table Sxx;
- Process monitoring specified in table Sxx;
- Land specified in table Sxx.

The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

Monitoring may be required:

- If the permit allows ongoing releases to the environment.
- If there is a particular risk of release to which we need to be alerted.
- To check that the effect of the activities on the environment is as predicted.

As standards change and improve we will agree their introduction with you and you can also agree changes with us.

NB Not all permits require monitoring, for example, in 2008 we published 27 sets of standard rules permits and only five of them required any monitoring.

For point source emissions, the tables will specify both the source of the emission and its location. The table below is an example for open air composting.

The Environment Agency monitoring certification scheme (MCERTS) provides for the product certification of monitoring systems (for example, instruments, analysers and equipment), the competency certification of personnel and the accreditation of laboratories. See www.environment-agency.gov.uk for further information on MCERTS certified equipment and www.ukas.org to search for MCERTS accredited stack testing organisations.

How monitoring is typically specified in your permit

Table 3.6 – Activities, Monitoring requirements

Monitoring point	Substance or parameter	Monitoring frequency	Monitoring method	Other specifications
Internal for each windrow and for any sample of waste or compost	Temperature	None specified	Thermocouple probe	Monitoring equipment shall be available on-site and used as required to ensure compliance with these standard rules.
	Oxygen	None specified	Oxygen meter	
	Moisture	None specified	Moisture meter or moisture touch test	

Monitoring (continued)

How to comply

General

MCERTS certified equipment, staff and laboratories should be used where practicable.

Monitoring may be necessary prior to development, during commissioning, start-up, normal operation, shutting-down and aftercare. Continuous monitoring and recording (or at least sampling in the case of water) is likely to be required:

- Where the potential environmental impact is significant or the concentration of substance varies widely.
- Where a substance is abated continuous monitoring of the substance is required to show the performance of the abatement plant. For example continuous monitoring of dust is needed after a fabric filter to show the effectiveness of the filter and indicate when maintenance is needed, or sampling BOD from an effluent treatment plant.

Where effective surrogates are available, they may be used with our agreement (and without prejudice to legal requirements) to minimise monitoring costs.

Where monitoring shows that substances are not emitted in significant quantities, it may be reasonable to reduce the monitoring frequency.

For analysis techniques and compliance criteria see the Monitoring Guidance Notes M1, M2 and M18 (see Annex 1). If substances need to be monitored that are not covered in these, you should contact us for advice.

Monitoring emissions to water, sewer and air and monitoring of process variables

Monitoring of emissions to air, water and sewer and monitoring of process variables is most frequently associated with IPPC Directive processes. The measures that you should employ to monitor these emissions are given in Annex 3. However, standard rules permits and waste activities may sometimes also require these to be monitored. You should refer to Annex 3 even if you are not subject to IPPC.

Environmental Monitoring

You should consider whether you need environmental monitoring to assess the effects of emissions to controlled water, groundwater, air or land, or emissions of noise or odour.

Environmental monitoring may be required, for example, when:

- There are vulnerable receptors.
- The emissions are a significant contributor to an Environmental Quality Standard (EQS) that may be at risk.
- You are looking for departures from standards based on lack of effect on the environment.
- You need to validate modelling work.

You should consider environmental monitoring for:

- Groundwater, where it should be designed to characterise both quality and flow and take into account short and long-term variations in both. Monitoring will need to take place both up-gradient and down-gradient of the site.
- Surface water, where consideration will be needed for sampling, analysis and reporting for upstream and downstream quality of the controlled water.
- Air, including odour.
- Land contamination, including sampling vegetation, crops and soils.
- Assessment of health impacts.
- Noise.

Where environmental monitoring is needed, you should refer to M9 ambient monitoring methods and M17 monitoring ambient particulates in air around waste facilities (see Annex 1).

4

Further information

- Records
- Reporting

Records



Typical permit condition or rule (Typically, condition 4.1.1 on the permit)

All records required to be made by this permit shall be:

- Legible and capable of retrieval.
- Made as soon as reasonably practicable.
- If amended, amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval.
- Kept, unless otherwise agreed in writing by the Agency, for at least 6 years or in the case of the following records until permit surrender:
 - Off-site environmental effects.
 - Matters which affect the condition of land and groundwater.

How to comply

Keeping records for six years makes sure that there will be sufficient information if we do have to investigate an environmental incident, while avoiding an undue burden on operators. Many regulatory regimes require us to carry out a formal periodic review of all permits, usually once every four to eight years. Keeping records for six years will ensure that there are sufficient records to do so.

You must keep records of any off-site environmental effects including pollution incidents that caused, or are alleged to have caused, harm or health effects until you surrender the site. This enables us, in the future, to investigate any cumulative effects of the activities.

You should keep records related to the condition of land and groundwater until you surrender the site. We expect you to keep all records that demonstrate that emissions to land from your activities have not caused any deterioration. The records relate to the initial state of the site. To demonstrate that there has been no deterioration we will expect you to know what this initial state is. The H5 Site Condition Report Guidance provides advice that will enable you to make sure that all appropriate records are kept (see Annex 1).

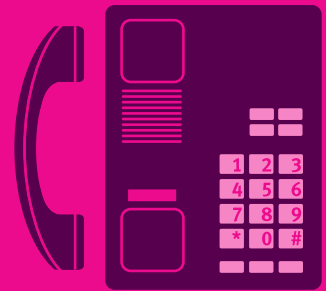
The records you will need to keep until permit surrender will include the design, construction, inspection, monitoring, maintenance and failure records for pollution prevention measures, such as surfacing and drainage. You will also need to record spills and incidents, what you do to investigate and make good those incidents and any action taken when an Environment Agency officer notes any relevant non-conformances or failures.

Duty of care records only need to be kept for 2 years.

If you manage hazardous waste you will also need to comply with the additional site record and return requirements arising from Part 7 of the Hazardous Waste Regulations.

Records may be held electronically. Times should be recorded using the 24-hour clock.

Reporting



Typical permit condition or rule (Typically, condition 4.3 on the permit)

The Agency shall be notified without delay following the detection of:

- Any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution.
- The breach of a limit specified in this licence.
- Any significant adverse environmental and health effects.

Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in Schedule xx to this permit within the time period specified in that schedule.

How to comply

The phrase “without delay” means that you must notify us as a priority, as soon as is practicable.

Significant adverse environmental effects include harm to any sensitive receptors and significant impacts on properties.

If, during monitoring, you discover any breaches of the limits specified in your permit, we expect you to notify us as soon as the results have passed any laboratory quality assurance checks.

During normal working hours, you may be able to contact the site officer or the local Environment Agency office by telephone, fax or email. You can also use the Environment Agency’s incident hotline, 0800 807060. Calls are free and the hotline operates 24 hours a day, seven days a week.

Annexes

ANNEX 1

Activity-specific and other relevant guidance

ANNEX 2

Activities for which odour is a key issue

ANNEX 3

Requirements for IPPC Directive activities

- Energy efficiency
- Efficient use of raw materials and water
- Avoidance, recovery and disposal of wastes
- Emissions to air, water and land
- Monitoring

Activity-specific and other relevant guidance

Unless stated otherwise, all of the following guidance can be found at www.environment-agency.gov.uk

Guidance for particular sectors as follows

- EPR 1.01 Combustion
- EPR 1.02 Oil, gas, coke and coal
- EPR 2.01 Coke, iron and steel
- EPR 2.03 Non-ferrous metals and the production of carbon and graphite
- EPR 2.04 Hot rolling of ferrous metals
- EPR 2.07 Surface treatment of metals and plastics
- EPR 3.01 Cement and lime
- EPR 3.03 Glass manufacturing
- EPR 4.01 Large volume organic chemicals
- EPR 4.02 Speciality organic chemicals
- EPR 4.03 Inorganic chemicals
- EPR 5.01 Incineration of waste and fuel made from waste
- EPR 5.02 Landfill
- EPR 5.03 Parts 1 & 2 Treatment of landfill leachate
- EPR 5.06 Treatment and Storage of Hazardous and Non-hazardous Waste
- EPR 5.07 Clinical waste
- EPR 6.01 Pulp and paper
- EPR 6.05 Textiles
- EPR 6.08 Tanning of hides and skins
- EPR 6.09 Intensive farming
- EPR 6.10 Food and Drink general
- EPR 6.11 Poultry processing
- EPR 6.12 Red meat processing
- EPR 6.13 Dairy and milk products

National Emission Reduction Plan (NERP)

- Guidance on the Trading Scheme for the National Emission Reduction Plan (NERP)

Composting

- [The Composting Industry Code of Practice: Industry guide for the prevention and control of odours at biowaste processing facilities](#)

Waste Electrical and Electronic Equipment (WEEE)

- [Guidance on Best Available Treatment Recovery and Recycling Techniques \(BATRR\) and treatment of Waste Electrical and Electronic Equipment \(WEEE\)](#). Available at www.defra.gov.uk

End-of-Life-Vehicles

- [Depolluting End-of-Life Vehicles Guidance for Authorised Treatment Facilities](#)
- [Depollution Guidance for End-of-Life Vehicles over 3.5 tonnes](#)
Available at www.defra.gov.uk

Guidance on particular topics

- H1 Environmental Risk Assessment
- H2 Energy Efficiency
- H3 Noise
- H4 Odour
- H5 Site Condition Report Guidance

Activity-specific and other relevant guidance (continued)

The Regulations

- The Environmental Permitting (England and Wales) Regulations 2007 SI 3538
- Environmental Permitting Core Guidance Available at www.defra.gov.uk

Application Forms

- The Environmental Permitting Regulations: Application forms and guide for applicants

Relevant Directives

- IPPC Directive (note 1)
- [Large Combustion Plant Directive \(1988/609/EEC\)](#)
- [Habitats Directive \(92/43/EC\)](#)
- [Asbestos Directive \(87/217/EEC\)](#)
- [Solvents Directive \(1999/13/EC\)](#)
- [Titanium Dioxide Directive](#)
- [Landfill Directive \(1999/31/EC\)](#)
- [Groundwater Directive \(80/68/EEC\)](#)
- [Waste Framework Directive \(2006/12/EC\)](#)
- [Water Framework Directive \(2000/60/EC\)](#)
- [End of Life Vehicles Directive \(2000/53/EC\)](#)
- [Waste incineration Directive \(2000/76/EC\)](#)
- [WEEE Directive \(2002/96/EC\)](#)
- [Mining Waste Directive](#)
- [Dangerous Substances Directive \(76/464/EEC\) and related daughter directives \(82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC\)](#)

BREF

- www.jrc.es/pub/english.cgi/0/733169 or www.eippcb.jrc.es

Accidents

- PPG 18 Managing Fire-water and major spillages, Environment Agency Pollution Prevention Guidance
- PPG 21 Pollution incident response planning
- BS 5908 Code of Practice for Fire Precautions in the Chemical and Allied Industries
- PPG 28 Controlled Burn
- COMAH guides – www.hse.gov.uk/pubns

Energy efficiency

- www.carbontrust.co.uk/energy/

Waste minimisation

- www.envirowise.gov.uk/waste

Water efficiency and releases to water

- www.envirowise.gov.uk/water

Releases to land

- Groundwater Protection Policy & Practice (GP3)

Activity-specific and other relevant guidance (continued)

Fugitive emission control

- PPG2 Pollution Prevention Guidance Note – Above-ground oil storage tanks, PPG 2, Environment Agency, gives information on tanks and bunding which have general relevance beyond just oil
- PPG 3 Use and design of oil separators in surface water drainage systems (pdf)
- The Control of Pollution (Oil Storage) (England) Regulations 2001. SI 2001 No 2954 – are generally applicable to the storage of any potentially polluting liquid
- CIRIA/Environment Agency Joint Guidelines:
 - Concrete Bunds for Oil Storage Tanks
 - Masonry Bunds for Oil Storage Tanks
- PPG 6 Working at Construction and Demolition-sites
- PPG26 Storage and handling of drums and intermediate bulk containers (IBCs)

Monitoring guidance

- M1 sampling requirements for stack emissions monitoring
- Guidance on undertaking an Operator Monitoring Assessment (OMA) Audit
- M2 monitoring of stack emissions to air
- M8 ambient monitoring strategy
- M9 ambient monitoring methods
- M13 monitoring hydrogen sulphide and total reduced sulphur in atmospheric releases and ambient air
- M15 Monitoring PM10 and PM2.5
- M16 monitoring volatile organic compounds (VOCs) to air from industrial installations
- M17 monitoring ambient particulates in air around waste facilities
- M18 monitoring discharges to water and sewer
- M20 quality assurance of continuous emissions monitoring systems
- Direct Toxicity Assessment for Effluent Control Technical Guidance (2000), UKWIR 00/TX/02/07

Activities for which odour is a key issue

The following are activities where odour is frequently a problem. If you operate one of these you must have an odour management plan unless otherwise agreed, in writing, by the Environment Agency.

If you are applying for a bespoke permit you should submit the plan with your application. For more information on what the plan should contain see **Odour** on page 21 of this document, the application form guidance and H1 Environmental Risk Assessment (see Annex 1). If you hold a standard permit you do not need to submit it. We will look at it during inspections or if an odour problem arises.

If your activities are not on the list but you know you have an odour problem you should also have an odour management plan.

Waste activities

- Landfill of biodegradable waste
- Biological treatment
- Composting in open windrows (available as a standard permit)
- Composting in vessels (available as a standard permit)
- Mechanical biological treatment (available as a standard permit)
- Sewage sludge treatment (available as a standard permit)
- Clinical waste treatment (available as a standard permit)
- Animal carcass incineration (available as a standard permit)
- Mobile plant for the treatment of waste soils and contaminated material, substances or products (available as a standard permit)¹

Chemicals

- Manufacture, use or recovery of compounds containing sulphur, ammonia, amines and amides, aromatic compounds, styrene, pyridine and esters

Food and farming

- Food production involving any form of cooking or heating and brewing
- Intensive livestock within 400m of a sensitive receptor

Other

- Refineries
- Distilling or heating tar or bitumen

¹ This set of rules does not contain a rule requiring the operator to maintain and implement an odour management plan as odour control would normally be addressed within the agreed deployment form.

Requirements for IPPC Directive activities

(Part A (1) activities listed in Schedule 1 of the Environmental Permitting Regulations)

Energy efficiency

Typical permit condition or rule (Typically, condition 1.3 on the permit)

The operator shall:

- Take appropriate measures to ensure that energy is used efficiently in the activities.
- Review and record at least every 4 years whether there are suitable opportunities to improve the energy efficiency of the activities; and
- Take any further appropriate measures identified by a review.

This is a requirement from the IPPC Directive. However most companies would wish to be efficient in the use of energy for both environmental and financial reasons. Taking these actions would be good practice for any company.

The requirement to address energy efficiency will be satisfied provided if:

either

- you meet the “Basic energy requirements” below and are a participant to a Climate Change Agreement (CCA)

or

- you meet the “Basic energy requirements” and “Energy supply techniques” below.

Even where a Climate Change Agreement is in place, you should still consider whether your decisions on energy efficiency may impact on the production of other pollutants as part of your integrated environmental assessment.

For example:

- where the choice of fuel impacts upon emissions other than carbon, e.g. sulphur in fuel
- where the minimisation of waste by waste-to-energy does not maximise energy efficiency, e.g. by Combined Heat and Power (CHP)
- where the most energy-intensive abatement leads to the greatest reduction in other emissions

If you hold an EU Emissions Trading Scheme (EU ETS) permit we will not impose, through your environmental permit, any requirements to reduce CO₂ emissions directly from those activities covered by your EU ETS permit.

Further guidance is given in guidance note H2 Energy Efficiency (see Annex 1).

Basic energy requirements

The requirements of this section are basic low-cost energy requirements that apply whether or not a CCA is in force for the installation.

How to comply

1. You should prepare a list/diagram of where the energy is used in your process
2. You should provide the information in Table 1.3.1, on the next page, annually.
3. You should provide the Specific Energy Consumption (SEC) for your main activity (or activities) based on primary energy consumption for the products or raw material inputs that most closely match the main purpose or production capacity of the installation. (eg MWh/tonne of product). You should compare this against any benchmarks for your sector. (See BREF and Energy Efficiency Guidance).
4. You should regularly review your energy use and provide an energy efficiency plan that identifies CO₂ savings of each potential measure. For those not in a CCA you should turn this into an action plan. An example format of the energy efficiency plan is shown in Table 1.3.2 on the next page.

Requirements for IPPC Directive activities

(Part A (1) activities listed in Schedule 1 of the Environmental Permitting Regulations)

Energy efficiency (continued)

Table 1.3.1 – Example breakdown of delivered and primary energy consumption

Energy source Delivered MWh	Energy consumption Primary MWh	% of total
Electricity*		
Gas		
Oil		
Other (Operator to specify)		
Exported energy	MWh	Source

* Specify source. Multiply delivered energy by 2.6 to obtain primary energy if the electricity is supplied from the national grid. If your electricity is from another source you may be able to justify using a different factor, to reflect the efficiency of generating and supplying the power.

Table 1.3.2 – Example format for energy efficiency plan

All applicants		Only applicants without CCA		
Energy efficiency measure	CO ₂ savings (tonnes)	Equivalent Annual Cost (EAC) £k	EAC/CO ₂ saved £/tonne	Date for implementation

Horizontal Guidance Note H2 provides an appraisal methodology. If you use a different appraisal methodology you must explain in the application how you have done the appraisal, and provide evidence that you have used appropriate discount rates, asset life and expenditure (£/t) criteria.

The energy efficiency plan is required to ensure that you have considered all relevant techniques. However, where a CCA is in place we will only enforce implementation of those measures 1-3 above.

Requirements for IPPC Directive activities

(Part A (1) activities listed in Schedule 1 of the Environmental Permitting Regulations)

Energy efficiency (continued)

5. You should use operating, maintenance and housekeeping measures in the following areas, wherever this will have a significant impact on the efficient use of energy at the installation: (Indicative checklists of appropriate measures are provided in Appendix 2 of the guidance note H2 Energy Efficiency.)

- Air conditioning, process refrigeration and cooling systems (leaks, seals, temperature control, evaporator/condenser maintenance).
- Operation of motors and drives.
- Compressed gas systems (leaks, procedures for use).
- Condenser and cooling systems.
- Feedwater heating systems.
- Steam distribution and utilisation systems (turbines, leaks, traps, insulation).
- Heat recovery systems.
- Space heating and hot-water systems.
- Lubrication to avoid high-friction losses.
- Boiler operation and maintenance, e.g. optimising excess air.
- Gas turbine/engine operation.
- Other maintenance relevant to the activities within the installation.
- Insulation, containment methods, (such as seals and self-closing doors).
- Avoidance of unnecessary discharge of heated water or air (e.g. by fitting simple control systems such as timers and sensors).

6. You should use energy-efficient building services to deliver the requirements of the Building Services section of the guidance note H2 Energy Efficiency. For energy intensive industries these issues may be of minor impact and should not distract effort from the major energy issues. They should nonetheless find a place in the programme, particularly where they constitute more than 5 percent of the total energy consumption.

7. You should monitor energy flows and target areas for reductions.

Energy supply techniques

How to comply

You should demonstrate that you have considered alternative, more efficient forms of generating electricity and heat where a cost/benefit appraisal shows them to be appropriate. You should use the methodology provided in Horizontal Guidance Note H2 for your cost/benefit appraisal. The following techniques should be considered where practicable:

- Use of Combined Heat and Power (CHP).
- Using renewable energy sources.
- Generation of energy by co-incineration of your waste.¹
- Joint schemes with other local operators which may make CHP more attractive.
- Use of less polluting fuels, such as biomass.

¹ Note that in most cases where this is done, the Waste Incineration Directive requirements will have to be applied.

Requirements for IPPC Directive activities

(Part A (1) activities listed in Schedule 1 of the Environmental Permitting Regulations)

Efficient use of raw materials and water

Typical permit condition or rule (Typically, condition 1.4 on the permit)

The operator shall:

- Take appropriate measures to ensure that raw materials and water are used efficiently in the activities.
- Maintain records of raw materials and water used in the activities.
- Review and record at least every 4 years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
- Take any appropriate further measures identified by a review.

The efficient use of raw materials, running at optimum rates and minimising breakdowns and planned shutdowns are good for the environment and can have a significant impact on profits. The steps outlined below simply lead you through the steps of analysing your processes. You should also follow the links in Annex 1 where you will find a wealth of assistance to help you to make improvements.

Raw material selection

Selecting raw materials and the process techniques presents an opportunity to control emissions at source by reducing usage or substituting materials that are less harmful or which can be more readily abated.

How to comply

You should make a list of the main materials used which have potential for significant environmental impact, including:

- Quantities used.
- Chemical composition, where relevant.
- Fate of the material (i.e. approximate percentages to air, land, water and products).
- Environmental impact potential, where known (e.g. toxicity, bioaccumulation potential, degradability).
- Any practicable alternative materials that may have a lower environmental impact.
- Justification for the continued use of any substance for which there is a less hazardous alternative (e.g. on the basis of impact on product quality or costs vs environmental benefits).

You should have procedures for controlling the impurity content of raw materials.

You should consider whether changes to the process could make savings on raw materials or water use.

You should review this situation regularly.

Requirements for IPPC Directive activities

(Part A (1) activities listed in Schedule 1 of the Environmental Permitting Regulations)

Efficient use of raw materials and water (continued)

Waste minimisation audit (optimising the use of raw materials)

How to comply

You should carry out a waste minimisation audit at least every four years. The first audit shall take place within two years of the issue of your permit unless your application has included details of a satisfactory audit carried out in the two years prior to submission of the application.

You should submit the methodology used for the audit and an action plan for reducing the use of raw materials within two months of completion of the audit. The audit should be carried out as follows:

- Process mapping. Map the use and fate of raw materials and other materials, (including by-products, solvents and other support materials, such as fuels, catalysts and abatement agents), onto a process flow diagram. Use data from the raw materials inventory and other company data as appropriate.
- Materials mass balance. Analyse data for each principal stage of the operation in order to construct a mass balance for the installation.
- Action plan. Using the information from process mapping and the materials mass balance, assess opportunities for improved efficiency and waste reduction by changes in process. Prepare an action plan. The timescale for implementing the improvements should be agreed with us.

Minimising water use

How to comply

Review

You should carry out a review of water use (a water efficiency audit) at least every four years. The first audit shall take place within two years of the issue of your permit unless your application has included details of a satisfactory audit carried out in the two years prior to submission of the application.

When reviewing water use you should:

- Inspect water supply pipework systems regularly and repair any leaks as soon as practicable.
- Produce flow diagrams and water mass balances for your activities.
- Establish water efficiency objectives, based on benchmarks in sector specific guidance or the relevant BREF note.
- Identify constraints on reducing water use beyond a certain level.
- Use water pinch techniques in more complex situations such as chemical plant, to identify the opportunities for maximising reuse and minimising use of water.
- Establish the water quality needs of each use, so that you can identify opportunities for recycling.
- Use this information to identify opportunities for reducing water use.
- Prepare an action plan to reduce water use. The timescale for implementing the improvements should be agreed with us.

Requirements for IPPC Directive activities

(Part A (1) activities listed in Schedule 1 of the Environmental Permitting Regulations)

Efficient use of raw materials and water (continued)

Measures

You should apply the following general techniques in sequence to reduce emissions to water:

- Use water-efficient techniques at source wherever possible.
- Recycle water within the process from which it issues, by treating it first if necessary. Where this is not practicable, recycle it to another part of the process that has a lower water quality requirement.
- If you cannot use uncontaminated roof and surface water in the process, keep it separate from other discharge streams, at least until after the contaminated streams have been treated in an effluent treatment system and been subject to final monitoring.
- Keep more contaminated water streams separate from less contaminated streams, such as cooling waters, where there is scope for reuse – possibly after some form of treatment.
- Consider the use of treated final effluent, perhaps after mixing with fresh water.
- Consider membrane treatment of effluent which can give water suitable for use in your process. The amount of effluent can be greatly reduced or even eliminated. In some circumstances, filtration and membrane treatment can replace a conventional effluent treatment plant.
- Directly measure and record fresh water consumption regularly, ideally every day, at every significant usage point.
- As part of your ongoing management, you should include general efficiency techniques such as:
 - Vacuuming, scraping or mopping in preference to hosing down.
 - Reusing wash water (or recycled water) where practicable.
 - Using trigger controls on all hoses, hand lances and washing equipment.

Requirements for IPPC Directive activities

(Part A (1) activities listed in Schedule 1 of the Environmental Permitting Regulations)

Avoidance, recovery and disposal of wastes

Typical permit condition or rule

(Typically, condition 1.5 on the permit)

The operator shall:

- Take appropriate measures to ensure that waste produced by the activities is avoided or reduced, or where waste is produced it is recovered wherever practicable or otherwise disposed of in a manner which minimises its impact on the environment.
- Review and record at least every 4 years whether changes to those measures should be made; and
- Take any further appropriate measures identified by a review.

How to comply

This condition is important because it requires you to demonstrate waste avoidance or reduction measures. It also requires that where waste is produced you do not automatically choose the cheapest waste disposal option but consider recovery options. It requires you to think about the impact on the environment of all the available options and select the option which is best for the environment.

You will be required to:

- Comprehensively characterise and quantify each waste stream arising from the regulated facility.
- Describe how each waste stream is to be recovered or disposed of.

If you propose any disposal:

- Explain why recovery is technically and economically impossible; and
- Describe the measures planned to avoid or reduce any impact on the environment.

The records should include the characterisation information, including any waste analysis methods, how and where wastes are recovered or disposed of, how the assessment considered all available technical options and the economics and environmental impact of each disposal option.

Requirements for IPPC Directive activities

(Part A (1) activities listed in Schedule 1 of the Environmental Permitting Regulations)

Emissions to air, water and land

Typical permit condition or rule

(Typically, condition 3.1, 3.1.1 on the permit)

There shall be no point source emissions to air, water or land.

There shall be no point source emissions to air, water or land, except from the sources and emission points listed in Schedule x, tables y.y, and z.z.

The limits given in Schedule x, tables y.y, and z.z. shall not be exceeded.

Point source emissions to air

How to comply

You should identify the main chemical constituents of your emissions, including the separate compounds that make up your emissions of volatile organic compounds (VOCs) where practicable.

You should assess the dispersion capability of your vent and chimney heights and make an assessment of the fate of the substances emitted to the environment.

You should aim to avoid visible emissions even where you already meet particulate benchmarks. However, because plume visibility is extremely dependent on the particle size and reflectivity, the angle of the light, and the sky background, we accept that, even when BAT is employed and very low emissions are being achieved, some plumes may still be visible under particular conditions.

You should minimise water vapour plumes wherever practicable.

However, you should not use primary energy to reduce a plume simply because it is visible; we do not consider this to be BAT. It may be appropriate to use waste or recovered heat to reduce a plume. For example, heat from a gas stream prior to wet scrubbing can be used to re-heat the same exhaust stream after scrubbing by means of a gas-gas heat exchanger. The use of energy for exhaust gas re-heat should be balanced against the benefits gained.

The emissions benchmarks in the relevant activity-specific guidance describe levels that are achievable using best available techniques. If you cannot prevent an emission, you should use the appropriate techniques to ensure the emission limits in your permit are met.

Requirements for IPPC Directive activities

(Part A (1) activities listed in Schedule 1 of the Environmental Permitting Regulations)

Emissions to air, water and land (continued)

Point source emissions to water

How to comply

You should prevent releases of harmful substances to the aquatic environment where practicable, whether releases are direct or via the sewage treatment works. You should prevent releases to water completely where this is practicable.

You should apply the following general principles in sequence to control emissions to water:

- You should minimise water use and reuse or recycle wastewater.
- You should minimise contamination risk of process or surface water.
- Wherever possible you should use closed loop cooling systems and use procedures to ensure blow down is minimised.
- If you use any potentially harmful materials you should prevent them from entering the water circuit.

You should consider using filtration/osmosis or other techniques which allow the effluent water to be cleaned for release or, preferably, for return to the process. If you use such a technique you should consider particularly how you dispose of the concentrated residues. These can often be returned to furnaces, evaporated, solidified, sent for incineration etc. Tankering of such residues off the site as waste, simply transfers the problem to another place, unless they are sent to a facility with the genuine ability to recycle the materials.

If the pollutants in the waste water are all readily biodegradable or the effluent contains only materials which are naturally occurring in much larger quantities in the receiving water, you may be able to justify not using filtration/osmosis or similar techniques.

The emissions benchmarks in the relevant activity-specific guidance describe levels that are achievable using best available techniques. If you cannot prevent an emission, you should use the appropriate techniques to ensure the emission limits in your permit are met.

Where effluent is treated off-site at a sewage treatment works the above factors still apply. In particular, you must demonstrate:

- That the treatment provided at the sewage treatment works is as good as would be achieved if the emission were treated on-site, based on reduction of load (not concentration) of each substance to the receiving water. (The H1 software tool will help in making this assessment.)
- That action plans are appropriate to prevent direct discharge of the waste-waters in the event of sewer bypass (via storm/emergency overflows or at intermediate sewage pumping stations). Where your discharges are significant, you should make arrangements with the sewerage undertaker to know when bypass is occurring, and reschedule activities such as cleaning, or even shut down the process entirely if that is necessary to prevent discharge of untreated effluent direct to controlled water.
- That a suitable monitoring programme is in place for emissions to sewer.
- That you know the identity of the main chemical constituents of the treated effluent (including the make-up of the chemical oxygen demand (COD) and the presence of any substances of particular concern to the aqueous environment). The fate of these chemicals in the environment should be assessed.

The concept of BAT requires prevention or minimisation of releases where it is cost effective to do so. In some cases, this may not be sufficient to achieve the water quality standards, meaning that you will need to use techniques which are more environmentally effective than BAT (even if not cost effective) or we may not be able to permit continued operation of the installation.

Requirements for IPPC Directive activities

(Part A (1) activities listed in Schedule 1 of the Environmental Permitting Regulations)

Monitoring

Typical permit condition or rule

(Typically, condition 3.5.1 and 3.5.4 on the permit)

The operator shall, unless otherwise agreed in writing by the Agency, undertake monitoring specified in the following tables in Schedule x of this permit:

Point source emissions specified in tables Sxx, Sxx and Sxx;
 Surface water specified in table Sxx;
 Noise specified in table Sxx;
 Ambient air monitoring specified in table Sxx;
 Process monitoring specified in table Sxx;
 Land specified in table Sxx.

How to comply

Monitoring of emissions to water and sewer

If effluent flow monitoring is included as part of the permit and there is a numeric value such as total daily volume then the MCERTS: self monitoring of effluent flow scheme will apply. This will include all effluent emissions including those to public sewer. An 8% target uncertainty will apply to the emission. An inspection of the flow monitoring arrangements and the associated management system will have to be carried out. Details of how the scheme operates can be found at www.environment-agency.gov.uk

Your permit will specify the parameters to be monitored and the frequency of monitoring. Even if no parameters are specified in your permit, it is good practice to monitor flow rate, pH, temperature, COD, turbidity, and oil content. The frequency of such monitoring will depend upon the sensitivity of the receiving water and should be proportionate to the scale of your operations. See Table 3.5.1 on page 47.

Before submitting an application, you should have a fuller analysis carried out covering a broad spectrum of substances, to establish that all relevant substances have been taken into account. This should cover the substances listed in Schedule 5 of the Regulations unless we agree that they are not applicable.

The need to repeat such a test will depend upon the potential variability in the process and, for example, the potential for contamination of raw materials. Where there is such potential, further tests may be appropriate.

Any substances found to be of concern, or any other individual substances that may be in your discharge and to which the local environment may be susceptible should also be monitored more regularly. This would particularly apply to the common pesticides and heavy metals.

Composite samples are acceptable where the concentration does not vary excessively.

In some sectors there may be releases of substances that are more difficult to measure and whose capacity for harm is uncertain, particularly when combined with other substances. "Whole effluent toxicity" monitoring techniques can therefore be appropriate to provide direct measurements of harm, for example, direct toxicity assessment (see Annex 1, Monitoring guidance).

Requirements for IPPC Directive activities

(Part A (1) activities listed in Schedule 1 of the Environmental Permitting Regulations)

Monitoring (continued)

Monitoring of emissions to air

Your permit will specify the parameters to be monitored and the frequency of monitoring.

Where appropriate, you should undertake periodic visual and olfactory assessment of releases to ensure that all final releases to air are essentially colourless, free from persistent trailing mist or fume and free from droplets and odour.

There are a wide variety of possible releases to air, and specific information may be found in the activity-specific guidance (see Annex 1). In general:

- We would expect continuous monitoring where the releases are significant and where it is needed to maintain good control; e.g. NO_x emissions.
- Gas flow should be measured, or otherwise determined, to relate concentration to mass releases.
- To relate measurements to reference conditions, you will need to determine and record:
 - Temperature and pressure.
 - Water vapour content, where the emissions are the result of a combustion process or any other wet gas stream. This is not needed where the water vapour content is unable to exceed 3% by volume or where the measuring technique measures the other pollutants without removing the water.
 - For combustion processes, oxygen content on a dry basis.
- Reference conditions are:
 - Temperature 0°C (273K).
 - Pressure 101.3 kPa.
 - For oxygen and water content see the activity specific guidance for your sector.
 - M2 monitoring of stack emissions to air explains how to convert measured values to reference conditions (see Annex 1).

Monitoring of process variables

Some process variables may affect the environment and you should identify and monitor these as appropriate. Examples might be:

- Monitoring raw materials for contaminants where contaminants are likely and there is inadequate supplier information.
- Plant efficiency where it has an environmental relevance.
- Energy consumption across the plant and at individual points of use in accordance with the energy plan.
- Monitoring pressure drop across a bag filter or the temperature of a process where these confirm that the emissions will be under control.

Requirements for IPPC Directive activities

(Part A (1) activities listed in Schedule 1 of the Environmental Permitting Regulations)

Monitoring (continued)

Table 3.5.1

Parameter	Monitoring frequency for typical plant	Monitoring frequency for small plant
Flow rate	Daily, and preferably continuous with integrated flows	Daily or weekly measurement (or estimate) of flows
pH	Continuous	Daily spot measurement
Temperature	Spot, or continuous in more critical situations	Spot, or not required depending on the situation
COD/BOD	Weekly	Daily or monthly spot, or not required depending on the situation
Turbidity	Daily visual observation or continuous in more critical situations	Daily/weekly visual observation or not required depending on the situation
Oil content	Daily visual observation or continuous in more critical situations	Daily/weekly visual observation or not required depending on the situation

(i) We haven't defined small plant precisely in the table above, but for the purposes of these monitoring requirements they will typically have a discharge <20m³/day.

(ii) The extent of monitoring required will depend on whether the discharge is to sewer or direct to controlled water, and in the case of the latter, the sensitivity of this water.

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