

PERMITTING

Permits legalise discharges, and require compliance with conditions which are intended to ensure that water quality objectives are met. Failure to comply can lead to criminal or civil sanctions.



WHATEVER THE COMPLEXITY OF THE SYSTEM, IT IS ADVISABLE TO KEEP THE PERMIT REQUIREMENTS AS CLEAR AND SIMPLE AS PRACTICABLE.





15

PERMITTING OVERVIEW AND PRACTICE

Where point source emissions of potentially polluting material to water cannot be avoided, it is essential to control their polluting impact.

Permits from the relevant government office or agency legalise such discharges. Conditions in the permit must be adhered to otherwise the discharge is illegal, rendering the operator liable to criminal and civil sanction. ▶



◀ The regulator needs to have a good understanding both of the potentially polluting activity and of the receiving water environment to avoid under- or over-prescriptive conditions. It helps if the operator shares this knowledge.

15.1 SUMMARY OF THE PERMITTING AND COMPLIANCE PROCESS

This sub-section summarises the key components of successful permitting and monitoring. Following subsections amplify the following key points and logic:

- The permitting of discharges is one of the tools available for securing desired water quality and quantity.
- The desired water quality (WQ) and quantity is specified in River Basin Management Plans in terms of water standards that must be met by a certain timescale.
- Normally it is the concentration of substances in a discharge, rather than the volume of the discharge, that is the limiting factor.
- Effluent discharges may be permitted only if there is a reasonable prospect that they will deliver the intended WQ or will contribute to meeting it.
- Applicants need to know what is required of them to obtain and comply with a permit.
- Regulators must provide advice and timely information to prospective applicants for discharges.
- The applicant should have early dialogue with the regulator to identify the regulator's requirements, and to avoid any potentially costly re-design of the business or development proposal that will generate the effluent.
- Pre-application discussions help define what the regulator wants and the options available to the applicant.
- The applicant undertakes the detailed discharge planning. This may require specialist modelling of options. The regulator may do this, or may audit the results of models commissioned by the applicant.
- The applicant applies for a permit, submitting all the information required by the regulator, plus an appropriate determination fee.
- The regulator puts the application on the Public Register, and its web site, and informs external consultees of the application so that they can make representations if their interests may be affected by the proposed discharge, and commences internal consultation with other sections of the regulator's portfolio (e.g. flood risk, water resources, navigation, fisheries, conservation, etc.)
- The regulator collates all responses to the consultation and considers them, along with the application, and determines whether or not to grant the permit, and if so what conditions to apply.
- The regulator informs the applicant of the decision and places the permit or refusal on the Register.



- The applicant may either accept the decision or appeal to a third party Inspector, whose decision is binding.
- If the applicant accepts the decision to grant a permit subject to conditions, the discharge may commence in accordance with the conditions from the date(s) specified in the permit, and subject to payment of the relevant discharge fee.
- If the applicant for a stand-alone discharge appeals against the permit decision or conditions, the permit is normally held in abeyance pending the Inspector's decision.
- If the application is for a discharge from a PPC installation or waste plant, then the permit condition applies pending the Inspector's decision.
- The discharger monitors the discharge in accordance with the monitoring plan specified by the regulator and provides relevant data and information to the regulator.
- The data and information is placed on the Register.
- The regulator assesses compliance with permit conditions and records it on the Register.
- The regulator assesses whether the receiving water quality matches the intended Classification and Status, and if not, the extent to which the discharge contributes to non-compliance.
- If there is non-compliance the regulator investigates and discusses reasons for non-compliance with the discharger, with a view to speedy improvement to meet permit requirements, or to review permit conditions to achieve the required Classification and Status.

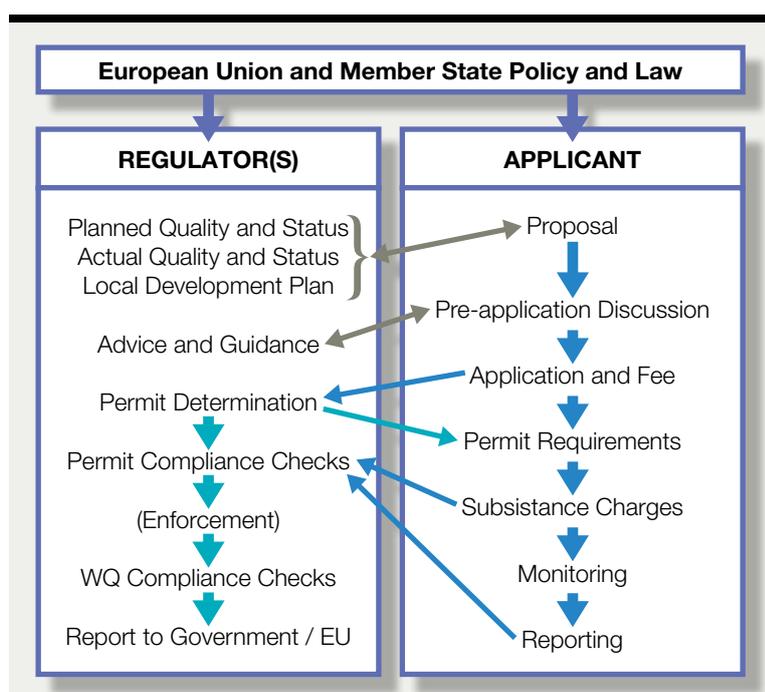


Figure 15.1 Permitting & Compliance Overview

- Depending on environmental impact of non-compliance with permit, the regulator may take criminal or civil enforcement action against the discharger.
- The results of enforcement are recorded on the Register by the regulator.
- The regulator periodically reports specified regulatory performance information to its lead government department, and thence to the European Commission.

The overall process is summarised in Figure 15.1.



15.2 PERSPECTIVE ON PERMITTING Permits for potentially polluting discharges are legitimate where it can be demonstrated that all reasonable measures have been taken by the operator to eliminate the need for the discharge, and that the risks to the environment can be controlled and minimised. Granting of discharge permits should precede and be a necessary requirement for development to go ahead, rather than being retrospectively applied for. It is recognised that introducing an effective permitting regime for the first time will inevitably initially involve a substantial proportion of retrospective applications from dischargers, and some form of prioritisation of determination of applications may be needed.

The water environment is very much affected by what happens on land and in the air. The water cycle involves all three media. Historically, control of activities that impact on these media have been separately regulated, with a variety of different permits and requirements, in some cases overlapping, or worse, creating a gap in regulatory effectiveness, and generating a lot of bureaucracy to the detriment of businesses with multiple environmental emissions.

Environmental regulation can be expensive and can be seen as a burden on business, particularly where that business does not receive any direct benefit for protecting the environment. It is important that regulatory effort is targeted at points of highest risk, either because of the inherent risk of the materials used in the activity, or because of the previous and/or current performance of the operator.

Unscrupulous operators may attempt to avoid regulatory obligations, relying on lack of communication and/or regulatory rigour between separate regulatory regimes, e.g.

discharging more pollutants to atmosphere via a stack rather than washing out and treating them in a trade effluent treatment plant that discharges cleaned water to a watercourse and produces sludge for disposal or recycling.

It is generally recognised that sustainable development is most likely to be achieved by encouraging the right behaviours rather than having to compel them. However, a firm but fair regulatory regime, backed up by stringent enforcement, is a recognised incentive for businesses to rapidly adopt the right behaviour.

15.3 THE LEGAL BASIS OF PERMITS In England and Wales the Environment Act 1995 delegates much primary executive authority from the Minister (central government) to the Environment Agency (a non-departmental public body). The Environment Agency is the responsible agency, established by government but independent of direct government control, for delivery of a range of, but not all, EU and national environmental obligations. This independence reduces the potential for political interference in environmental decisions.

The Environmental Permitting Regulations, Directives and national policy that they implement identify activities or types of discharge that require either permits or registration as being exempt from permitting. (Registration is for activities or discharges of standard type that can be subject to general binding rules because of lower environmental risk. The requirements are less onerous than permits and are therefore cheaper for operator and regulator to administer.) It is illegal to undertake such discharges or activities without permit or registration. It is an offence not to comply with the

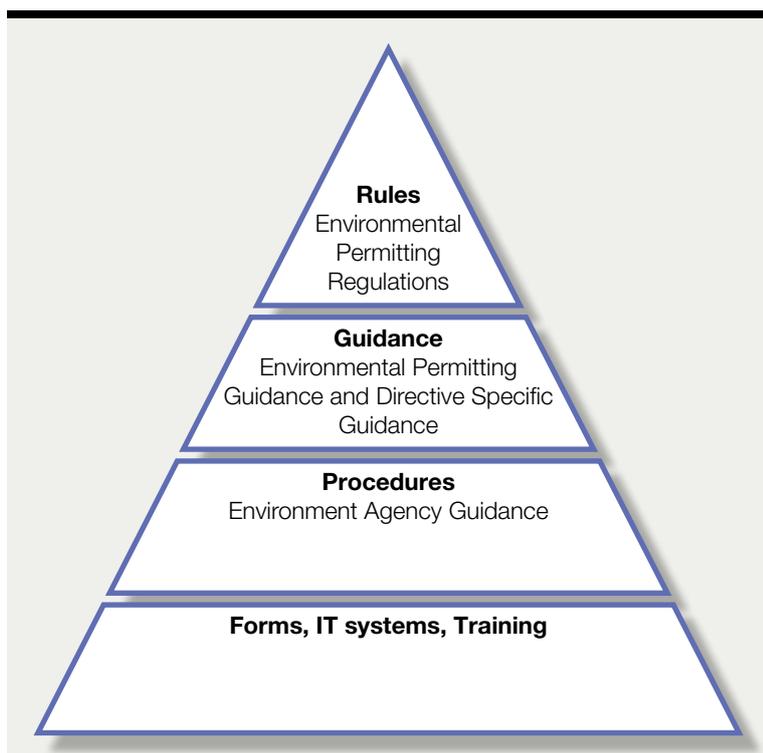


Figure 15.2 Environmental Permitting Hierarchy

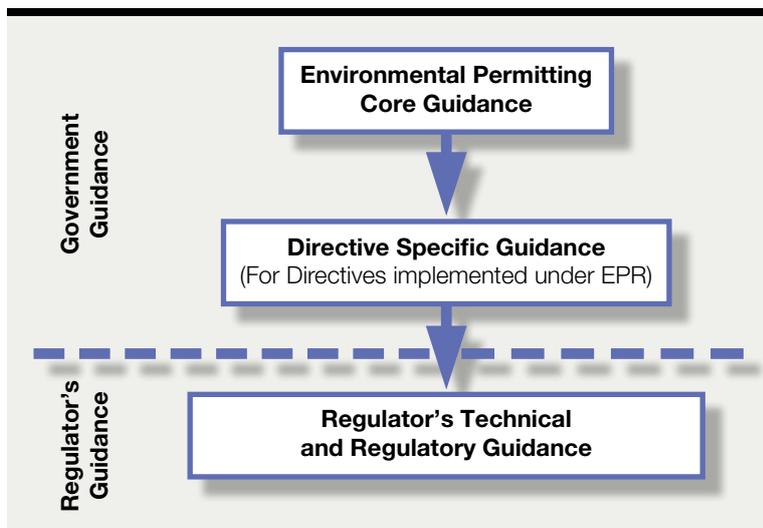


Figure 15.3 Environmental Permitting Guidance Hierarchy

requirements of a permit or registration. It is an offence to cause or knowingly permit pollution of water.

See the web link to the [Environmental Permitting Regulations 2010](#).
An embedded .pdf copy is provided [here](#).

The legal requirements are outlined in the [Environmental Permitting Core Guidance](#).
An embedded .pdf copy is provided [here](#).

15.4 THE ENVIRONMENTAL PERMITTING REGIME

In England and Wales the IPPC, Waste and Water regulatory regimes have been integrated under the Environmental Permitting Regulations which provide a common, risk-based flexible permitting and compliance platform for all environmental permits, whilst accommodating all the specific requirements of each legal regime. It is thus possible for a large and complex operation to have a single environmental permit that covers its emissions to all media and is consistent with the most stringent components of all the environmental regulatory regimes that apply to its operation. At the other end of the regulatory scale, the integration of regulatory methods has allowed low-risk water discharge activities to receive a much lighter level of regulation via registrations.

The Environmental Permitting Regulations provide a robust framework for the regulation of emissions to the environment, under which sits high level and detailed guidance and procedures for regulators and businesses. The hierarchy is shown in Figures 15.2 and 15.3 taken from Defra consultation material.

The government's guidance provides help for those operating, regulating or interested in activities that are covered by the Environmental Permitting (England and Wales) Regulations (EPR). The purpose of the Environmental Permitting Core Guidance is to have a simple, single reference point explaining how the Environmental Permitting Regulations work and how they are implemented. It replaces previous lengthy guidance for the former water, waste and IPPC systems with an easy-to-read, concise piece of guidance.

The main government EPR guidance document is the Environmental

◀ Permitting Core Guidance and is supported by further guidance on each of the various EU Directives delivered by the EPR.

The following web links provide access to the government guidance for EPR generally: [Environmental permitting Regulations Core Guidance](#) (March 2013)

[Introductory booklet on Environmental Permitting Regulations](#) (2010)

The government has also provided [Guidance for regulation of stand-alone water discharge activities](#) (i.e. discharges that are not PPC or Waste related discharges), and for [Regulation of groundwater activities](#).

Click on the hyperlinks below for embedded copies of the government guidance documents:

- [EPR Core Guidance](#)
- [EPR Booklet](#)
- [EPR Water Discharge Activities](#)
- [EPR Groundwater Activities](#)

Figure 15.4 provides a conceptual diagram of the structure of the Environmental Permitting Regulations 2010.

15.5 BESPOKE PERMIT, STANDARD RULES PERMIT, REGISTERED EXEMPTION, GENERAL BINDING RULES

There are basically four types of regulatory controls available under EPR for potentially polluting discharges, and the choice of which regime to apply depends on risk to the local environment.

The most demanding regime is the **bespoke permit**, where the conditions of permit may be tailored to the nature of the activity, including its inputs and operation; nature, volume and composition of discharge; and receiving water requirements. Most large industrial plant with process effluent discharges to water will fall under this regime, the precise

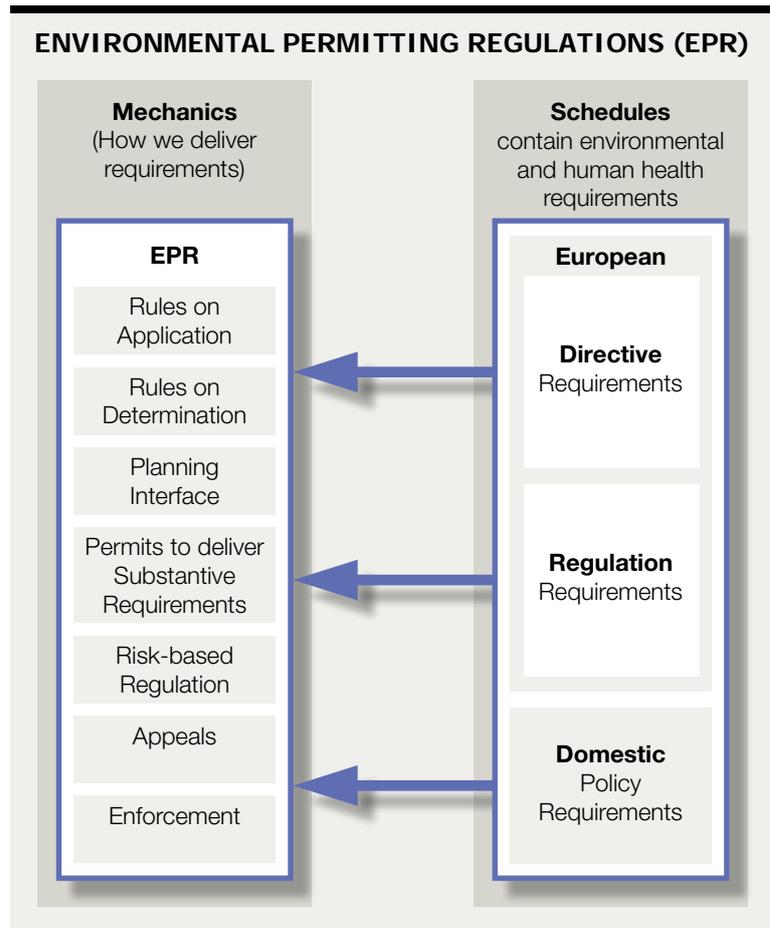


Figure 15.4 Conceptual Structure of Environmental Permitting Regulations 2010

scope of regulation depending on which Directives apply to the sector of business. Detailed risk assessments of several aspects of the business and receiving environment may be required. These will be used by the regulator to produce a comprehensive permit containing conditions that limit the risk of pollution occurring, or receiving waters failing to meet their prescribed Class. If the regulator refuses a valid application, or if the regulator imposes conditions that are unacceptable to the operator, the operator may appeal to the Minister or Minister’s appointee. Both parties are bound by the appeal decision. It is an offence to undertake a prescribed activity without a permit. It is an offence not to comply with a condition of a permit.

The overall scope and requirements for bespoke permits is outlined in the [Defra Environmental Permitting Core Guidance](#), Chapters 2 to 7: Introduction; What Facilities require an Environmental Permit?; The Regulator; Environmental Permit Applications; Application Procedures and

Determining Applications; and Chapters 9 to 14: Operator Competence; Consultation and Public Participation; Compliance Assessment, Enforcement and Review; Charging; Appeals; and Public Registers and information.

Standard rules permits are allowed for common types of discharge that are of lower environmental risk, but which nevertheless require a permit, and for which a national-scale risk assessment can be undertaken to generate rules applicable to an entire class of discharge. In most cases the regulator determines the standard rules following public consultation. These rules then form the standard permit. Operators may choose to apply for a standard rule permit if they can demonstrate compliance. Because the risk assessment is only undertaken once, the administrative costs are lower for standard rules permits, so charges are lower. Standard rules permits cannot be appealed as applying for them is voluntary. The national risk assessment may preclude certain standard rules permits where the receiving water is identified as being particularly sensitive to pollution. If a standard permit application has been accepted by the regulator, it is an offence



for the operator not to comply with the requirements of the standard rules. More detail on the requirements for standard rule permits is given in Chapter 8 of the [Defra Environmental Permitting Core Guidance](#).

Registered exemptions may apply to activities with low risk of pollution when undertaken in accordance with a national risk assessment and sector good practice, but which pose a risk if good practice is not adhered to. Classes of activity that are eligible for registration are determined nationally and specified in Regulations. Registration amounts to a notification by the operator to the regulator that an activity is taking place or is going to take place at a location, and that the operator agrees to comply with sector good practice. Registrations may be one-off, or renewable on a periodic basis, and are subject to a charge. Registrations may be precluded where the receiving water is identified as being sensitive to pollution. It is an offence not to have a registered exemption where one is required. It is an offence not to comply with a registered exemption. More detail on the requirements for registered exemptions is given in Chapter 15 of the [Defra Environmental Permitting Core Guidance](#).

Generally binding rules apply through direct application to the operator of primary or secondary law (Regulations). They may apply for classes of lower risk activities than registered exemptions, but which nevertheless need to be properly constructed, managed and maintained. They have not (yet) been used in England and Wales, but in Scotland the Controlled Activities Regulations (CAR) administered by the Scottish Environmental Protection Agency (SEPA) allow them for small sewage treatment plant and for surface water drainage systems, for example. Such activities are legal provided they comply ►

◀ with the rules set in the Regulations and do not cause pollution. There is no need for the regulator to be notified.

The SEPA web site has information on the [Controlled Activity Regulations \(CAR\)](#) and a Practical Guide to the Controlled Activity Regulations.

An embedded copy of the Practical Guide to CAR is provided [here](#).

15.6 TRADE EFFLUENT CONSENTS

There is a further tranche of permits issued by sewerage operators for trade effluent discharges made into the public sewerage system. Discharges of treated urban waste water or storm sewage overflows from the sewerage system are subject to environmental permits. The sewerage operator therefore needs to ensure that trade discharges to sewer do not threaten compliance with the environmental permit. Trade Effluent Consents are discussed further in Chapter 17.

15.7 ENVIRONMENTAL PERMITTING REGIME – ADVANTAGES & DISADVANTAGES.

The history of environmental regulation is that it has almost invariably been developed piecemeal and reactively, following recognition by government that environmental or public harm had been caused by activities that needed to be controlled. This applies both at national and European level.

In the UK environmental legislation dates back at least 150 years. The result has been an almost bewildering amount of different regulations for businesses to navigate and comply with. Often, different regulatory regimes overlapped, sometimes with contradictory requirements.

As part of the government's approach to

simplifying environmental governance, and in recognition of the fact that the majority of environmental permits can operate to a common framework, Defra established the Environmental Permitting Programme (EPP) in 2003 as one of several Better Regulation Initiatives.

The aim was to reduce regulatory administrative burden and increase business and regulatory efficiency by creating a common framework for all environmental permits for England and Wales. The immediate priority was to merge the IPPC and waste regulatory permitting regimes, as the regulatory overlaps were causing problems – both for local authorities and the Environment Agency, who between them shared regulatory responsibilities, and for the businesses that they regulated.

The resulting Environmental Permitting Regulations 2007 (EPR) addressed waste and IPPC regimes only. It introduced a common permitting platform for both regimes, fully compliant with the Waste Framework and IPPC Directive requirements, and in so doing considerably reduced the amount of regulatory administrative burden on industry whilst ensuring effective environmental protection.

The next phase was to bring together under the environmental permitting framework permitted discharges to surface water (discharge consents) and to groundwater (groundwater authorisations), together with non-nuclear radioactive substances regulation.

The Environmental Permitting Regulations 2010 successfully did so.

Further consideration is being given to bringing the water abstraction regulatory regime under the EPR framework. The [Defra Better Regulation web page](#) provides more detail on the aim, scope and content





of the Better Regulation Initiative and on the specifics of EPR development.

Much of the earlier material on the Defra Environmental Permitting Programme has now been archived, and can be accessed [here](#).

The key benefits of EPR are:

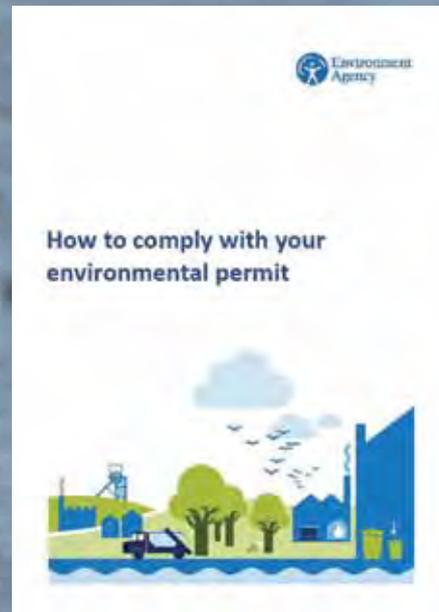
- Common application and permit templates.
- Standardised guidance and methodology.
- Less risk of regional variance in determination and enforcement of permits.
- Platform is not limited to a single regulator and can be expanded for use by other regulators.
- Encourages development of common data systems by regulators, increasing efficiency.
- Migration of subsistence charges to a common charges framework.

Disbenefits or outstanding deficiencies of EPR implementation include:-

- Permits issued under previous regulatory regimes (legacy permits) need to be updated to EPR template. It is not clear that regulators have sufficient resources to do this one-off exercise quickly.
- From an individual operator's viewpoint the common application process can appear complex, as the standard forms necessarily include all regulatory options, only a few of which are likely to be relevant to their specific case.
- The current application process can be seen as unwieldy, although planned menu-driven electronic forms are likely to make the application process much easier.
- The complex legal wording and composite structure of the Environmental Permitting Regulations makes it difficult for the non-legal professional to readily read and understand exactly what is required. There is heavy reliance on guidance to interpret the legal requirements. ■

16 ENVIRONMENT AGENCY GUIDANCE

We use the Environment Agency Environmental Permitting Guidance as an example of good practice, demonstrating the principles and need for a logical and transparent approach to water regulation. The examples that follow represent the situation at the time of writing, and can be used to demonstrate potential approaches and principles. Note that regulatory guidance is continually updated, so for current material consult the official [Environment Agency Guidance](#).



16.1 ENVIRONMENTAL PERMITTING GUIDANCE
The Environment Agency has published an extensive suite of regulatory advice and guidance, to aid its staff and for the benefit of applicants for permits and the general public. This is available from the [Business and Industry pages](#) of the Environment Agency web site. The advice and guidance is periodically updated, and so for the most up to date information it is best to consult the Environment Agency web site. Much of the Environmental Permitting advice and guidance relates to installations regulated under IPPC and IE Directives, and to Waste Management activities, where the focus is on minimising environmental risk and minimising releases to the environment. Specific water quality regulatory guidance makes up a relatively small proportion of the total information. One over-riding principle is that discharges to water under any Directive regime shall not cause a breach of the relevant water quality objectives for the receiving water. ▶





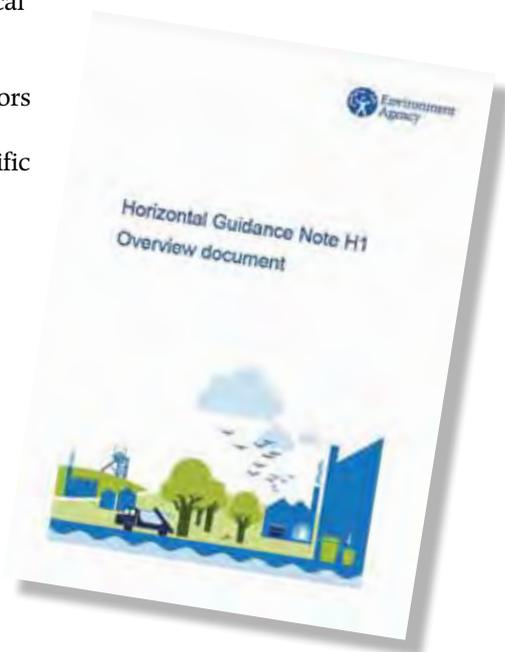
◀ For convenience some web pages and documents that are particularly relevant to water quality regulation have been downloaded and links embedded in this book. These reflect the Environment Agency web site content in November 2013.

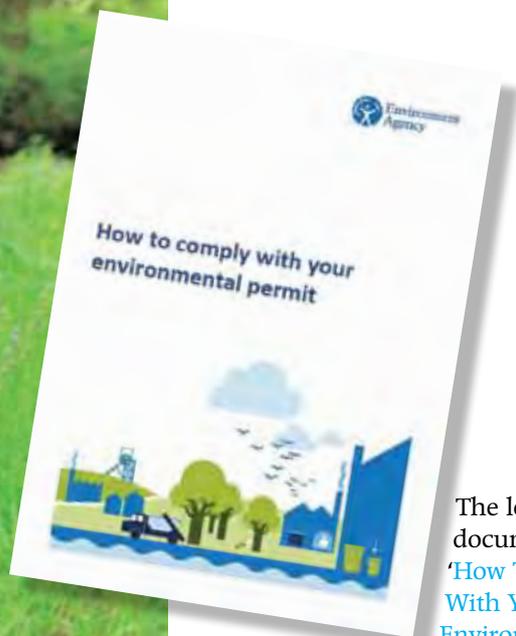
The sub-sections that follow highlight some of the more important aspects of the guidance.

The Environment Agency has published a series of general and sector-specific regulatory guidance to facilitate the permitting process under EPR. Successive levels of this guidance can be accessed via the Environment Agency web page on [Environmental Permitting Guidance](#).

The guidance is tiered and comprises:-

- A general introduction for applicants for permits - 'How to Comply With Your Environmental Permit'
- Sector specific technical guidance
- 'Horizontal' guidance applicable across sectors
- Regulatory guidance notes (RGNs) on specific aspects of policy and interpretation issues associated with EPR,
- Application guidance,
- Charges guidance
- Assessing the environmental risk of an activity – Operational Risk Appraisal (OPRA).





The lead document is 'How To Comply With Your Environmental Permit'.

An embedded copy is provided [here](#).

It contains guidance on management systems and permit conditions, and describes the basic standards that standard permit holders will need to understand. Applicants for bespoke permits will find the basic information they need here but they should also use other relevant technical guidance.

The guidance is split into seven parts:

- Part 1:** guidance for all activities;
- Part 2:** waste operations
- Part 3:** installations
- Part 4:** mining waste operations
- Part 5:** discharge of sewage or trade effluent
- Part 6:** groundwater activities (landspreading)
- Part 7:** where to find more information

The Environment Agency has also provided [information on environmental management systems aimed at Small and Medium-sized Enterprises \(SMEs\)](#) in various sectors. This includes the [general business sector](#) and specific information for operators of [small sewage treatment works](#) (less than 20m³ per day), and for common discharges onto land that may affect groundwater.

[Sector-specific technical guidance](#) (mostly for PPC and Waste Installations, but with separate documents covering 'Discharges to Surface Water and Groundwater', and 'Groundwater') is listed on the Environment Agency web site. Further, more detailed guidance on the requirements for water quality planning and discharge permits is also given, and is referred to elsewhere in this Chapter.

The sectors and web-links to their sector specific Guidance, are listed below:-

- [Cement and lime activities,](#)
- [Chemicals,](#)
- [Clinical waste,](#)
- [Combustion plants, including power stations,](#)
- [Discharges to surface water and groundwater,](#)
- [Food and drink,](#)
- [Groundwater,](#)
- [Intensive farming \(pigs and poultry\),](#)
- [IPPC Waste treatment and storage,](#)
- [Landfill,](#)
- [Mining waste,](#)
- [Paper, pulp and cardboard manufacturing,](#)
- [Printing and textiles - coating activities,](#)
- [Production and processing of metals,](#)
- [Radioactive substances activities – radioactive substances users,](#)
- [Radioactive substance – nuclear,](#)
- [Refineries,](#)
- [Spreading waste on land,](#)
- [Waste: incineration and energy recovery.](#)

Click the following links for copies of the web pages for [Discharges to Surface water and Groundwater](#), and for [Groundwater](#).

[Horizontal Guidance](#) covers aspects of environmental protection information that are relevant to all sectors regulated under the Environmental Permitting Regulations.

These include:-

- [Environmental Risk Assessment](#)
- [Energy Efficiency](#)
- [Noise](#)
- [Odour](#)
- [Site Condition Report Guidance](#) ▶

◀ The Horizontal Guidance on Environmental Risk Assessment(H1) is particularly important regarding the determination of discharge limits on pollutants discharged to water. H1, and H1 Annexes D and E provide discharge limit determination tools for 'basic' and 'complex' activities.

- Statutory Periodic Permit Reviews
- Defining Waste Recovery: Permanent Deposit of Waste on Land
- Understanding the Landfill Directive



Regulatory Guidance Notes (RGNs) provide Environment Agency guidance on policy and legal interpretation issues associated with implementing the Environmental Permitting Regulations. They are high level guidance notes on the Agency's approach to implementing the Regulations. They sit below government guidance.

Web links for current RGNs are provided below and cover:-

- Understanding the meaning of Operator
- Understanding the meaning of regulated facility
- Deciding applications are duly made and requests for further information
- Setting standards for environmental protection
- Operator competence
- Determinations involving sites of high public interest
- Appeals to Secretary of State or Welsh Ministers
- Substantial changes in operation at installations, mining waste facilities and other facilities involving solvents and combustion
- Surrender
- Dealing with the death, financial difficulties or striking off of an operator
- Enforcement powers

Regulation of intensive farming of pigs and poultry has proven to be contentious in the UK, as the sector had previously been virtually unregulated, with operators having a poor understanding of environmental requirements. Given the generally low levels of experience of regulation and technical skills within the sector, the Environment Agency has put considerable effort into making the guidance and instructions as clear as possible for farmers. Nevertheless, the problems faced by this sector are relatively straightforward, so the [sector guidance](#) and [worked examples](#) may prove to be a useful introduction to some of the complexities of IPPC control.

16.2 WATER DISCHARGE ACTIVITY GUIDANCE

The Environment Agency used to provide on its web site public copies of its detailed internal WQ guidance to its staff under the heading 'Water Quality Documents'. The page contained links to detailed guidance on WQ Planning, Permitting, and Monitoring and Compliance. As part of the rationalisation of the Environment Agency's web site

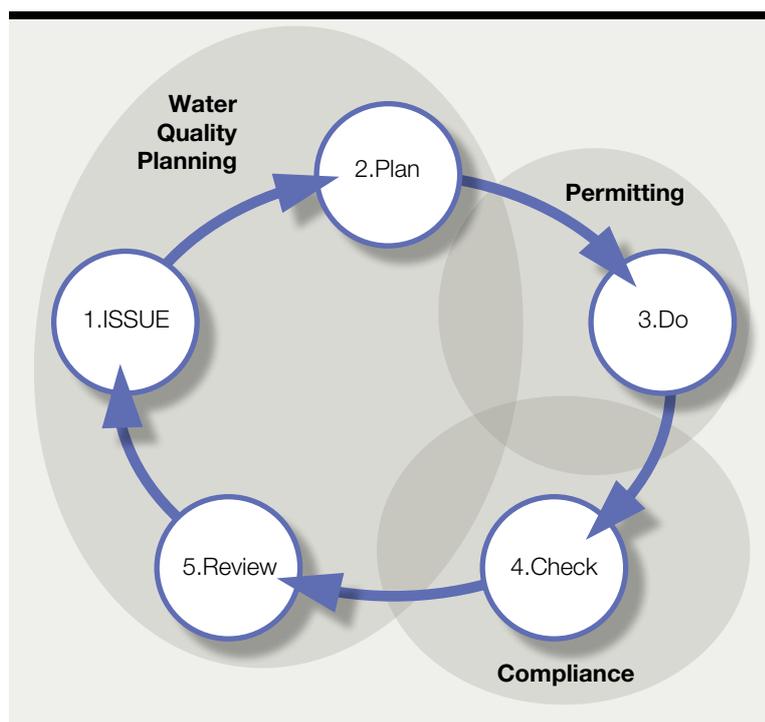


Figure 16.1 Relationship between Water Quality Planning, Permitting and Compliance

prior to much of its information moving to the government web site in April 2014, these documents are no longer readily accessible, although they are currently available on request. Downloaded copies of the documents available in November 2013 can be accessed [here](#). **Note that these documents are subject to continual review, so for current information always consult the Environment Agency.**

The guidance covers three distinct but linked processes –Water Quality Planning, Permitting Discharges, and Monitoring and Compliance Assessment. For each there was a process map, identifying the sequence or suite of regulatory activities and tasks, and the specific guidance relating to them. The process maps contained embedded web links to documents on the Environment Agency web site, making reference to them very easy. Screen captures and downloaded copies of the process maps are provided in the following sections.

The three components of water discharge activity guidance apply whether or not the discharge is ‘stand alone’, although the often more prescriptive requirements for PPC installations and waste facilities frequently deliver tighter discharge standards than needed simply to achieve

EQS. Each component has its own Plan-Do-Check-Review cycle whilst interacting with the other components and also contributing to the overall regulatory delivery part of the larger scale ‘Environmental Protection’ Plan-Do-Check-Review cycle.

16.3 WATER QUALITY PLANNING PROCESS

Water Quality planning comprises several steps, which ideally would be run sequentially, but in practice often run to some extent in parallel and in co-ordination with Permitting and Compliance processes:

- Identify Uses, Objectives and Targets for water body (see below).
- Identify substances or attributes of interest and monitor water body for them.
- Assess and report compliance of water body with Class and Status, including any permit non-compliance.
- Determine and report any reason for failure to meet Class or Status.
- Formulate and appraise options for solutions.
- Create and implement action plans.
- Audit delivery of planned outputs and outcomes and report on findings.

The identification of Uses, Objectives and Targets (UOT) is the first and most important part of the WQ planning process as all action flows from this. In order to plan the maintenance of current Good Status, or remediation if current Status is not good, regulators need to identify the current legitimate uses made of the water environment in a catchment, and the measures necessary to facilitate their continued sustainable use in a way that contributes to Good Status. This may involve limiting

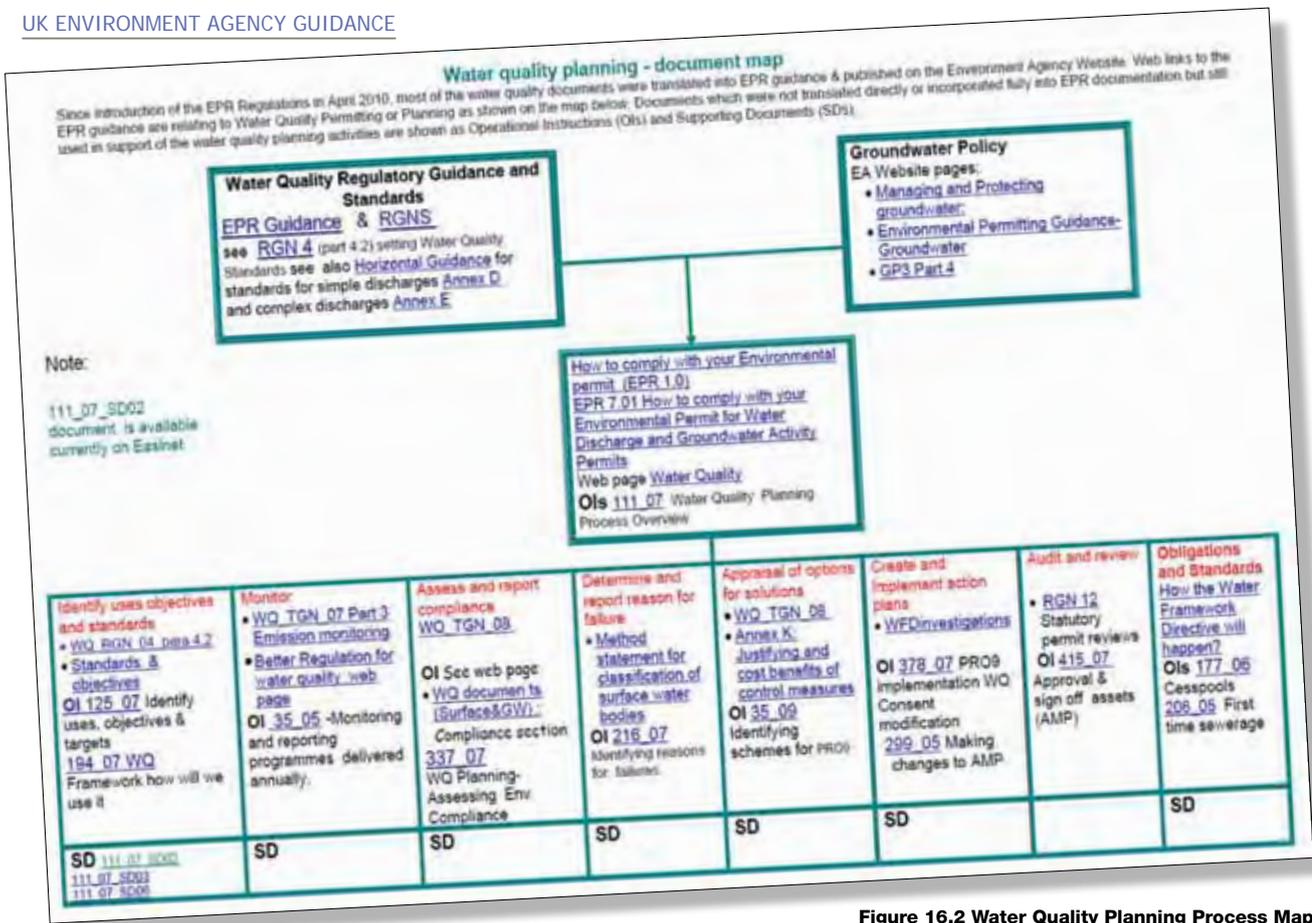


Figure 16.2 Water Quality Planning Process Map

◀ the use or modifying the activities of others that threaten that use.

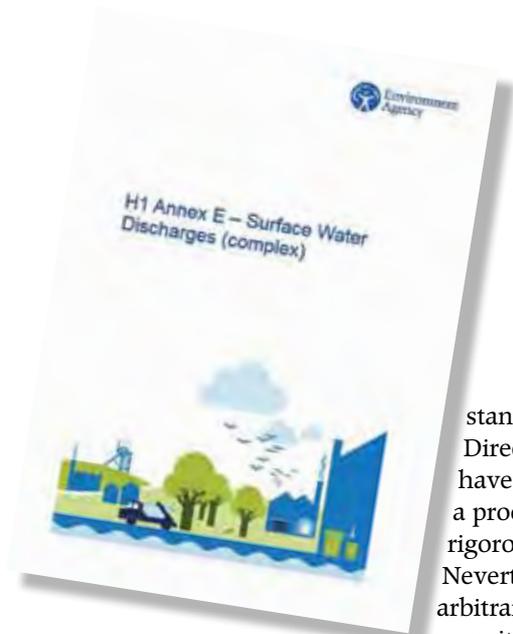
This means linking the use made of the water environment (e.g. designated as needing protection for economically important species under the Freshwater Fish Directive) to Directive outcomes (e.g. sustainable fish populations), and setting water quality targets as incremental steps towards that, to be achieved over the plan timescale. The outcome for a plan cycle might be ‘achieving Good Status’, or ‘improving towards Good Status’, depending on the difficulty in getting from current quality to desired quality within the six years of a Water Framework cycle. The WQ target would be expressed in terms of meeting specified quality standards set out in the relevant Directive (e.g. the concentration limits required within Freshwater Fish protected areas.)

The overall process is depicted in the Water Quality Planning Process Map (Figure 16.2), which can be accessed as a downloaded file [here](#). This is no longer maintained on the EA’s web site. It contains some functional web links to detailed guidance documents that are referenced in it, but several are no longer working. These documents may be obtained from the Environment Agency directly.

16.3.1 EVIDENCE BASED ENVIRONMENTAL TARGETS

There is reasonably good scientific knowledge of the biological impact and effects of many common polluting chemicals, but relatively little for the majority of synthesised chemicals. For regulators’ Water Quality Planning and Permitting purposes, setting local water quality standards requires a good understanding of acute and chronic toxicity mechanisms for the whole range of aquatic and aquatic-dependent organisms. Where this knowledge does not currently exist, precautionary water quality standards may be derived, based on multiple dilutions of concentrations that have been demonstrated in the laboratory to either kill or have an adverse effect on certain organisms. So a newly synthesised substance that in laboratory tests kills fish at a concentration of 1 mg/l may have a precautionary one thousand dilutions applied to derive a prospective water quality standard of 0.001mg/l. More investigation and data may show this to be over-precautionary (or under-precautionary) and subsequently a revision to the standard, and any permits relying on it, may be made.

The majority of statutory water quality



standards (i.e. Directive standards) have been through a process of rigorous peer review. Nevertheless, quite arbitrary orders of magnitude (x10, x100,

etc.) safety factors still apply to many of the substances limited by statutory quality standards. Their virtue is that they probably provide a high degree of protection to the receiving water and stimulate technical innovation if it is currently difficult for dischargers to achieve the required discharge limits. On the down side, if the standard is too strict, it may impede economic development and result in excessive energy consumption in manufacturing and effluent treatment processes.

It is therefore worthwhile ensuring that the effectiveness of standards is reviewed from time to time, looking at discharge data and the environmental monitoring data collected downstream of discharges (both water quality and ecology) to verify that the standard is set at the appropriate level. Strict adherence to the Water Quality Planning cycle described in Chapter 2 and above should ensure that this occurs. As a generalisation, the 'review' part of the cycle is the least well developed.

Most Directives have an implementation timescale by which the Member State must meet the required standards in its waters. The European Commission has necessarily focused most attention on late or non-compliance with Directive standards. Seemingly little has been done to review compliant waters to check whether the standards are in fact set at the right level.

The starting point for the regulator in considering an application for permit, or pre-application discussion, is to establish

the temporal distribution of current water quantity (flow) and quality at the proposed discharge point, such as annual maxima and minima, mean, median, mean and 95 percentiles, together with the impacts of any current or permitted but not yet operating discharges or abstractions. For major watercourses (and their first and second order tributaries) statutory quality standards or requirements are likely to apply, in accordance with Directive requirements. If the water already meets those requirements, the regulator's job is to ensure that the permit does not threaten future compliance. If the receiving water does not currently meet the required standards, the regulator will need to assess the likely reasons for failure, intended remediation and timescale for completion, and the contribution that the new discharge may make to downstream compliance.

16.4 WATER DISCHARGE PERMITTING PROCESS

The Water Discharge Permitting Process is sequential with inputs from Water Quality Planning and Compliance at certain stages. The following steps can be identified:

- Developer identifies need for discharge.
- Pre-application discussions identify any environmental constraints on developer's proposal, and allow developer to assess options for discharge control.
- The developer makes a formal application, which is accepted as being valid after checking for completeness and payment of the correct fee. Details of the application are entered on the Register.
- The application is advertised and specified consultees are notified by the regulator. ▶

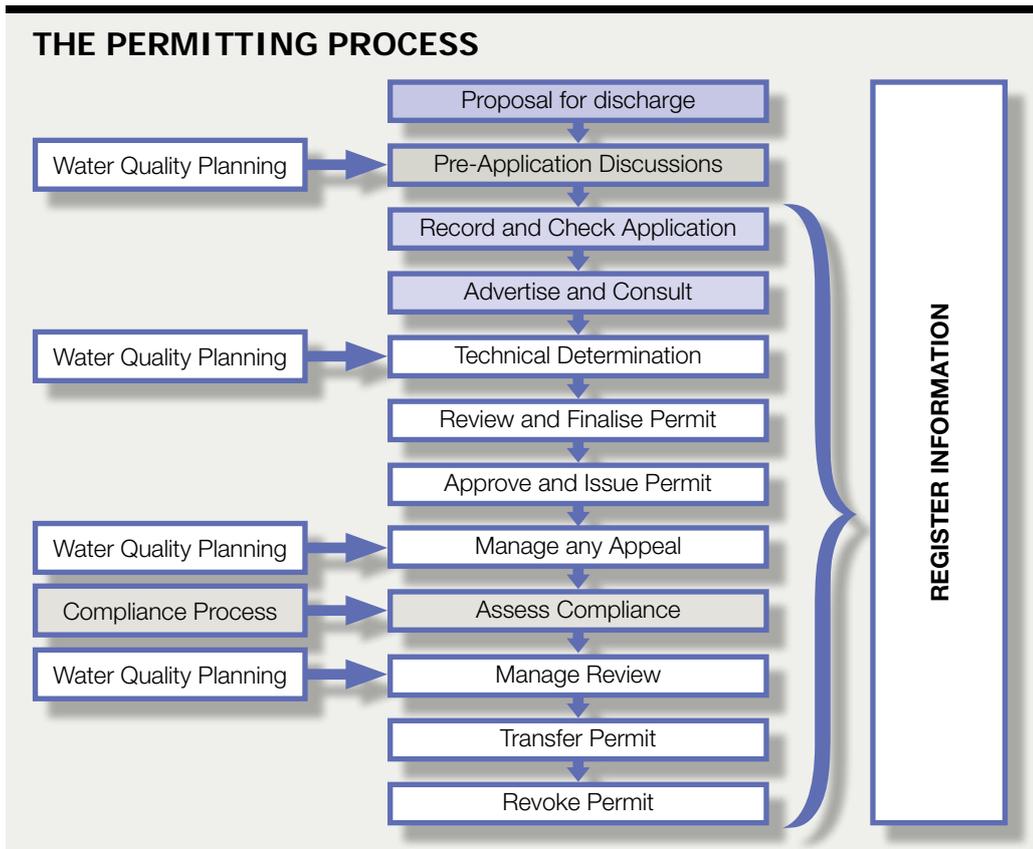


Figure 16.3 Water Discharge Activity Permitting Process

- Technical determination of the permit conditions is undertaken by the regulator, taking into account representations made in response to advertisement and consultation. Further information may be sought from the applicant.
 - The technical analysis is reviewed and final permit conditions are determined.
 - The permit is then issued to the applicant, and details of the permit and decision documents are entered on the Register.
 - If the applicant does not agree with the permit they may appeal to an independent inspector for the permit to be altered.
 - If the applicant accepts the permit the discharge may begin, in accordance with the conditions in the permit, which will include such monitoring and reporting of the discharge quality and quantity as the regulator deems necessary for compliance to be assessed.
 - Periodically, in conjunction with water quality planning cycle timescales, the permit may be reviewed, checking on discharge performance and on achievement of expected receiving water quality. The review may result in alteration of permit conditions, which may be appealed.
 - In the event of a change of ownership of a discharge it may be transferred to the new owner.
 - In the event of cessation of discharge the permit will be revoked.
- The process is summarised in Figure 16.3 Water Discharge Activity Permitting Process.
- The components of permitting are depicted in Figure 16.4 Permitting Process Map, which can be accessed as a downloaded file [here](#). The Process Map is no longer maintained on the EA's web site. It contains some functional web links to detailed guidance documents that are referenced in it, but several are no longer working. These documents may be obtained from the Environment Agency directly. ▶



16.5 COMPLIANCE PROCESS Most water discharge compliance activities are addressed in EPR Guidance – [How to Comply with Your Environmental Permit](#) and in [How to Comply with your Environmental Permit for Water Discharge and Groundwater Activity Permits](#), both of which can be accessed via the web links or as downloaded documents [here](#) and [here](#).

Specific guidance on stand-alone water discharge activity permit compliance includes:

- Compliance assessment for descriptive permits
- Compliance assessment for numeric permits
- Urban Waste Water Treatment Directive requirements
- UV Disinfection Compliance assessment
- Flow Measurement
- Groundwater discharge compliance assessment
- Operator Self-monitoring
- Operator Performance Risk Appraisal (OPRA)
- Compliance Assessment Plans
- Compliance Classification Scheme (CCS).

The Environment Agency web site formerly

provided a web link of detailed internal guidance to staff on aspects of compliance in Figure 16.5 Compliance Process Document Map which could be accessed as a downloaded file [here](#). The map is no longer maintained on the EA's web site. It contains some functional web links to detailed guidance documents that are referenced in it, but several are no longer working. These documents may be obtained from the Environment Agency directly.

Compliance assessment may identify non-compliance, in which case some form of enforcement may be required. Enforcement is discussed in Chapter 25.

16.6 MAKING AN APPLICATION FOR A PERMIT

The Environment Agency uses a common format for all environmental permit applications, which must be used to apply for a new bespoke or standard permit or to vary, transfer or surrender a permit. The form is quite complex, and can run to many pages as it has to cover all types of permissible activities. It is broken down into a series of parts, only some of which will be required for a particular sector, location or discharge type.

The [Making an Application](#) web page provides links to the relevant forms and guidance on how to complete them.

The guidance includes specific





Water quality compliance - document map

Since introduction of the EPR Regulations in April 2010, most of the water quality documents were translated into EPR guidance which is published on the Environment Agency Website. Web links to the EPR guidance are relating to the appropriate topics of permits conditions and are shown on the map below. Documents which were not translated directly or incorporated fully into EPR documentation but still useful in supporting of the water quality compliance permitting activities are shown as Operational Instructions (OIs) and Supporting Documents (SDs).



Water Quality Regulatory Guidance and Standards
 EPR Guidance & RGNS
 see RGN.4 (part 4.2) setting Water Quality Standards see also Horizontal Guidance for standards for single discharges Annex D and complex discharges Annex E

Groundwater Policy EA Website pages:

- [Managers and Protecting groundwater](#)
- [Environmental Permitting Guidance: Groundwater](#)
- [GPR Part 4](#)

How to comply with your Environmental permit (EPR 1.0)
 EPR 7.01 How to comply with your Environmental Permit for Water Discharge and Groundwater Activity Permits
OIs
 OI 09 Compliance Umbrella Doc
 OI 07 Quick guide to Assessing Environmental Compliance - Reporting Requirements
 OI 05 Monitoring & Reporting Programmes

OI = Operational Instructions
 SD = Supporting Documents
 Green = Internal documents available on request

Descriptive Permits • WQ_TGN_08 EPR 4.1 OI 1155_08	Numeric permits (LUT) • WQ_TGN_08 EPR 4.2 OI 74_07	Urban Waste Water Treatment Directive (UWTTD) • WQ_TGN_08 EPR 4.3 • OMA guidance for OSM and UWTTD OI 06_09	Operator Self Monitoring (OSM) • EPR 2.01 • WQ_TGN_07 Part 3 OI 07_09	UV Disinfection • WQ_TGN_08 para 4.4 OI 59_03 085_10 - (Microbial Source Tracking MST)	Flow • WQ_TGN_08 para 4.5 & 4.6 OI 472_10	Groundwater See Horizontal Guidance • Annex J, Jk, Jj, Jk Jll 114_06 Sheep Dip 221_07 Work Notices	Compliance Classification Scheme (CCS) OIs 534_10 EPR Internal 26_08 (Applying CCS to GW)	Operator Risk Performance Appraisal (OPRA)	Compliance Assessment Plans (CAPs) (to be drafted)
SD 1155_08 SD01	SD	SD	SD	SD	SD	SD	SD	SD	SD

Figure 16.5 Compliance Process Document Map

◀ information for discharges to surface water and to groundwater and provides examples of different application types. A downloaded example of a simple water discharge activity permit application for a small sewage treatment works is provided [here](#).

16.7 THE PERMITTING PROCESS - PRE-APPLICATION DISCUSSIONS ON ENVIRONMENTAL IMPACTS AND OPTIONS FOR MINIMISING THEM

It is in developers' and operators' best interests to contact the regulator as early as possible in the development planning process, and well before any significant decisions have been made. Regulators should make accessible as much environmental information as is readily available to prospective permit applicants, and freely provide advice as to the sort of information a successful application should provide. A fine line has to be drawn between the regulator providing regulatory advice and providing environmental or design consultancy services to the prospective applicant. Failure to undertake pre-application discussions has led in the past to unpleasant and costly surprises for businesses, and an unwanted workload for regulators. Normally regulators will provide advice and information free of charge for a limited initial period, but if substantial work is involved in addressing the prospective discharge requirements, or in providing environmental information, then a charge may be made to the applicant to recover costs.

The UK environmental regulators provide extensive support and information for small and medium sized businesses that may have environmental impacts. Their information is included on the



government's business support web sites for England and Wales and for the devolved Regions. As these are entirely web based resources it is not feasible to append documents from them to this report. They provide an excellent introduction for non-specialists to the range of environmental regulation that a small or medium sized business may experience, and point to where advice may be found.

The UK regional governments and environmental regulators collaborated to establish Netregs – a web site providing access to a wide range of environmental regulatory information for small and medium sized enterprises (SMEs). A major concern for SMEs has been the difficulty of finding out what environmental obligations apply in their business sectors. Netregs provided this information in a readily accessible way. Unfortunately a government rationalisation of web sites in 2011 resulted in most of the Netregs information for England becoming less available in England, whilst similar information reflecting regional priorities and legislation remains available in Wales, Scotland and Northern Ireland.

Some of the English Netregs information can be accessed on the Gov. uk web site under the heading [Waste and Environmental Impact](#). The Environment Agency web site has a wide range of

information under the general heading [Business and Industry](#), with subsections on environmental topics and sector-specific information, plus a monthly e-bulletin – Business Environmental Update. Neither web site reproduces the user-friendly features of Netregs. In Wales the Welsh government's Business Wales web site has a lot of information presented in a manner similar to the former Netregs under the heading [Environment – Efficiency Waste and Pollution Prevention](#).

Fortunately Scotland and Northern Ireland have maintained and continue to develop Netregs, focused on the nuances of their own legislation. As international and EU obligations apply to the whole UK, the

vast majority of the Netregs environmental regulation information on the [Scotland and Northern Ireland Netregs](#) web site remains relevant to England and Wales.

The Environment Agency provides a substantial amount of advice for prospective environmental permit applicants on its web-site. The downloaded Environmental Permitting web pages and documents accessed via hyperlinks in this book provide a major resource on 'how to do environmental permitting,' focusing on discharges to water.

For the most part the hyperlinks in this Chapter use the now archived EA Website to access web pages and documents available at the time of drafting.

Note that they are a snapshot in time, and may be subject to change, so prospective applicants should always consult the authoritative website for the most up-to-date information.

In 2014 the Environment Agency web site will become part of the gov.uk web site. It is not yet clear exactly what content will change, remain the same or be lost, so this book, provides a useful repository of how at least some of the water environmental regulatory business was presented to the public in late 2013.

The [Making an Application](#) web page and associated guidance documents relevant to Applications for Environmental Permits for discharges to water are particularly useful. They include information on applications for various types of permits, variations, transfer and surrender of permits; and a useful document – [Getting it right first time](#) – hints and tips on making a successful application for a permit. It also includes links to [example applications for discharges to surface waters and to groundwater](#). ▶



16.8 RISK ASSESSMENTS
 Environmental risk assessment is an absolutely fundamental component of permitting and regulatory delivery. It underpins all regulatory decision making and, if undertaken properly, ensures that the level of regulation of an activity or discharge is cost effective and proportionate to the long-, medium-, and short-term risks posed to the water environment.

A cyclical framework for environmental risk management is required to offer structure in what would otherwise be a complex array of considerations for the decision-maker. The framework also offers a mechanism through which the process of environmental risk assessment and management can be explained to stakeholders, and acts as a valuable aide-mémoire to multidisciplinary teams conducting risk assessment. This framework identifies four main components of risk assessment: (1) formulating the problem; (2) carrying out an assessment of the risk; (3) identifying and appraising the management options available; and (4) addressing the risk with the chosen risk management strategy.

Essential components of environmental risk assessment and management can be summarised as follows:

- Risk questions are best informed by a range of stakeholders.
- When a risk problem is highlighted, the source, pathways and receptors under potential threat should be recognised.
- An assessment plan is then needed to outline the data requirements for assessment and the methods needed for data collection and synthesis.
- Resources for the assessment can be allocated following initial risk screening and prioritisation. Identifying the hazard at the

beginning of the assessment should clearly define the harm to the environment that is of concern.

- An estimation of the potential consequences of the hazard being realised and an evaluation of the probability of impact can then be carried out.
- This evidence is then used to provide judgement as to the significance of the risk.

Detailed guidance on environmental risk assessment is provided in [Green Leaves 3, Guidelines for Environmental Risk Assessment and Management](#), published by Defra in November 2011.

A .pdf copy is provided [here](#).

16.9 APPLICATION AND SUBSISTENCE CHARGING

It is a fundamental principle that the polluter pays for pollution. It is therefore appropriate for the operator of a regulated activity to pay a contribution towards the costs of regulation, both at the time of application and decision by the regulator, and for the work undertaken by the regulator for subsistence of the permitted discharge. These charges are additional to those incurred by the operator in monitoring activities and emissions and in providing information to the regulator.

Nevertheless the public/society also obtains value from the operator by way of goods and services provided as a result of the regulated activity, so there is also a 'public good' component or contribution to the cost of regulation. Not all the regulatory burden falls on the operator.

The permit in effect allocates a proportion of environmental assimilative capacity to the discharger. Without it the operator cannot legally continue business, so it has





a high value to the business, of equivalent importance to success as the raw materials and energy used by the process, although it is not in itself tradeable. Note that when a business is sold, the permit can be transferred with it.

Principles for Regulators' Charging schemes, which have to be approved by the lead Minister, are set out in Chapter 12 of [Defra Environmental Permitting Regulations Core Guidance](#).

Details of the current (2014/2015) [Environment Agency Environmental Permitting charging scheme](#) are on the web together with the [charges for discharges of effluent to surface waters and groundwaters](#).

16.10 MONITORING AND INSPECTION

Most production processes benefit from monitoring to ensure that the quality of finished products is up to the customer's specification, and that input materials are not unduly wasted. Businesses are familiar with management and monitoring techniques directed towards this end. The same principles apply to discharges from process-effluent treatment plant. Here the 'customer' is the receiving water environment. Typically the finished products are:

- the effluent complying with permit specification, and therefore the customer's (that is, the environment's) requirements
- waste sludge for further treatment, recycling or disposal.

The waste stream(s) feeding the effluent treatment plant need to be monitored by the operator to ensure that no off-specification releases of pollutants are made that might

exceed the plant's treatment capacity or otherwise cause non-compliance with the permit. The effluent treatment system process(es) need to be monitored by the operator to ensure they are operating within design parameters and to maximum efficiency. The regulator may, in addition, specify that specific components of the effluent discharge have to be monitored and recorded by the operator on a continuous or episodic basis. Typically these might include flow rate, pH, temperature, turbidity, conductivity, Dissolved Organic Carbon, Chemical Oxygen Demand, Dissolved Oxygen and Ammonia on a continuous or relatively high frequency sampling basis. Components that are less readily monitored directly, such as metals, pharmaceuticals and pesticides, will be subject to a less frequent sampling programme.

In connection with the subsistence of the permit, the regulator's role is to check that the required information on process and discharge has been provided, that the discharge complies with the permit, and, if not, to ensure that steps (including legal enforcement) are taken to secure compliance as quickly as practicable. In addition, to ensure that information provided by the operator pursuant to the permit, and any action by the regulator in policing the permit is entered on the Public Register.

For a well-run business, interaction with the regulator will be largely pre-planned on the basis of the regulator's risk assessment of the discharge, with effort concentrated on performance audit and routine inspection, and review of the risk assessment. Poorly performing businesses may require a disproportionate amount of reactive effort to investigate pollution incidents and to respond to public complaint. This may divert regulator's effort away from the planned programme. ►



◀ In such a case there may be a strong incentive for the regulator to move quickly to legal enforcement in order to get performance on track.

16.11 OPERATIONAL RISK APPRAISAL

The Environment Agency has introduced a formal risk assessment process, Operational Risk Appraisal (Opra), for certain activities that it regulates to enable it to focus resources where most needed, and to charge operators according to the amount of effort needed to regulate them. It does not yet apply to stand-alone water discharge activities (e.g. most sewage and trade effluent discharges that are not included in other regimes, which have recently been included under the EPR umbrella) as there is an environmental risk element embedded in the current charges for discharges scheme. [The Opra scheme](#) is briefly outlined on the Environment Agency web page which links to several Opra explanatory documents and the Agency's charging schemes.

The following sections have been extracted and paraphrased from the Environment Agency document [Environmental Permitting Regulations Operational Risk Assessment \(Opra for EPR\) version 3.9](#), a downloaded copy of which can be viewed [here](#).

To look after the environment regulators need to be able to put more of their effort into the higher-risk activities and poor performers. Operational risk appraisal (Opra) is a way of assessing risk that helps them do this. They use it to:

- help them plan how to use their resources
- report on how the activities they regulate are performing
- work out charges

Opra assesses five attributes of an activity and generates a score which defines the amount of regulatory effort needed and translates this into a charging band.

The attributes assessed are:

- complexity
- emissions and inputs
- location
- operator performance
- compliance rating.

These are explained in more detail below and in [Opra for EPR v 3.9](#).

The Environment Agency [web page on Opra](#) contains links to further Opra guidance.

Much of the information feeding into the Opra risk assessment is provided by the permit holder. The Environment Agency uses a questionnaire, linked to the five attributes, to be completed by the permit holder to generate the Opra profile.

The answers to these questions provide an environmental risk assessment for the permitted activities. This then converts to the permit holder's Opra-banded profile.

There are three different types or 'tiers' of environmental permit, subject to Opra. The different types relate to the complexity of the activity under scrutiny.

Tier 1 is for Registrations. There are currently no Tier 1 Opra permits.

- Tier 2 is for fixed charge permit activities. These are permits where the regulator makes a decision whether or not to grant the permit, but where there isn't enough environmental risk to justify using the full Opra scheme.
- Tier 3 is for complex installations

with bespoke permits, waste facilities, and some mining waste operations. Permits are subject to the full Opra scheme.

The five 'attributes' are:

1 Complexity - the type of activities covered by the permit. This attribute looks at:

- what the permit holder does and what hazardous materials are on site.
- what the permit holder releases or could release into the environment.
- the work the regulator needs to do to make sure the permit holder is keeping to the rules of the permit and to keep public confidence.

2 Emissions and inputs - the amounts the permit holder is allowed to put into and release from an activity. This attribute looks at:

- releases to air.
- releases to water.
- releases to land.
- waste coming onto site.
- waste being transferred off site.

3 Location - the state of the environment around the permit holder's site.

This attribute looks at:

1. how far the site is from where people live, work and play.
2. how far the site is from areas that have been given special legal protection, e.g. Sites of Special Scientific Interest.
3. what surface and ground waters occur near to the site and if the site could be flooded.
4. the potential for a direct release to water and what the permit holder has in place to stop it.
5. if the site is in an area the

local council is targeting to improve air quality.

4 Operator performance – the permit holder's management systems and enforcement history. This attribute has two parts:

- 1) the management systems and procedures the permit holder uses to help keep to the rules of the permit.
- 2) recent formal enforcement action taken at the permit holder's site by regulatory organisations.

5 Compliance rating - how well the permit holder keeps to the conditions of the permit. Using the Environment Agency's compliance classification scheme (CCS), this attribute looks at:

- whether or not the permit holder has kept to the conditions of the permit.
- what could have happened to the environment if the permit holder failed to keep to the conditions of the permit.
- work the regulator needs to do to deal with the permit holder if the permit holder fails to keep to the conditions of the permit.

The Environment Agency works out the compliance rating using the total CCS for each calendar year, January to December. The compliance rating adjusts the yearly subsistence charge for most tier 2 and tier 3 permits. Details of the adjustments for each band are presented in the [EP Charging Scheme and Guidance 2013/2014](#).

The information and answers for each attribute will give the permit holder a band rating from A to E, and A to F for compliance rating. An 'A' rating means the permit holder needs less regulatory effort from the regulator, while 'E' or 'F' means more regulatory effort is needed ►

◀ because of the increased environmental risk of the permit holder's activities, and to help the permit holder to keep to the conditions in the permit. 'Regulatory effort' means the work the regulator does to assess how well the permit holder meets these conditions. This can include visits to the permit holder's site to give advice or to assess how the permit holder is doing, checking information against the permit or auditing the permit holder's management system.

16.12 PUBLIC REGISTER
 The Register is in many ways one of the most important resources of an environmental regulator, and the public that it serves, yet it often has a very low profile in day-to-day regulatory life. The Register is specified by law, and the regulator is obliged to enter and maintain a wide range of specified information on it. It is an important safeguard against over-zealous or indifferent regulatory performance. In the context of regulated activities, it provides a public record of what is required or allowed, individual operator's performance, and the regulator's response to it.

The form of the Register is not specified; it may be paper or electronic or a combination of both. It has to be made available for scrutiny by the general public on demand during normal working hours, and information from it must be provided on request at reasonable cost.

The Register contains, subject to certain exclusions on grounds of national security or commercial confidentiality:

- Notices from Minister to Regulator specifying water quality objectives, e.g. WFD and EQS Directive Standards.
- Directions from Minister to Regulator

requiring specified action(s) in relation to any part of the regulatory remit, e.g. monitoring water quality, investigating water quality issues, etc.

- Details of applications for new or varied permits, applications for transfer or surrender of permits, notices requiring further information from applicants, regulator's reports on environmental assessment of an operator's activity, regulator's decisions, appeals and information relating to appeals, permits granted, and information provided in compliance with permit.
- Water and effluent sample results for all samples taken by the regulator in connection with pollution control functions, or that the regulator required to be taken, including action taken, if any, by the regulator on the results.
- Details of convictions of any person for an environmental offence.
- Details of legal cautions of any person.

The regulator has some discretion about whether any civil sanctions for non-compliance with environmental law are entered on the register, but is required to publish 'from time to time' reports on the civil sanctions imposed and their effects.

Information from the regulator's register may also be provided 'up the chain' to local or national government. Directive related data, such as monitoring in compliance with Environmental Directives, and emissions from regulated businesses, is reported to the European Environment Agency for publication in the European Environment Information and Observation Network (Eionet) and the European Pollutant Release and Transfer Register (E-PRTR).





16.13 ENVIRONMENTAL MONITORING FOR DISCHARGE PERMIT COMPLIANCE

It is generally seen as the regulator's job to monitor the receiving water at critical points downstream of the discharge to ensure that the assumptions made in granting the permit have been substantiated, and the water is meeting its target Class and is not unduly affected by the discharge. The regulator has powers of entry on to land to secure samples and information. These powers are not generally granted to operators. In complex situations, for instance where there are several discharges in close proximity, or the discharge has a permitted mixing zone, both monitoring and modelling of discharges and water quality may be necessary in order to demonstrate an individual discharger's compliance with permit and overall compliance with water quality standards.

16.14 COMPLIANCE ASSESSMENT, ENFORCEMENT AND REVIEW

The Regulator must take enforcement action if a permit is not complied with. See also Chapter 25. The Regulator should periodically review the terms of a permit to ensure that it is consistent with latest environmental knowledge and technological advancement.

Default frequency of review may be specified in Directives or by national legislation, otherwise it is dependent on the regulator's assessment of risk of the permit not being complied with, or of environmental deterioration. A comprehensive set of reviews of permits was undertaken for the Habitats Directive, and the advent of River Basin Management

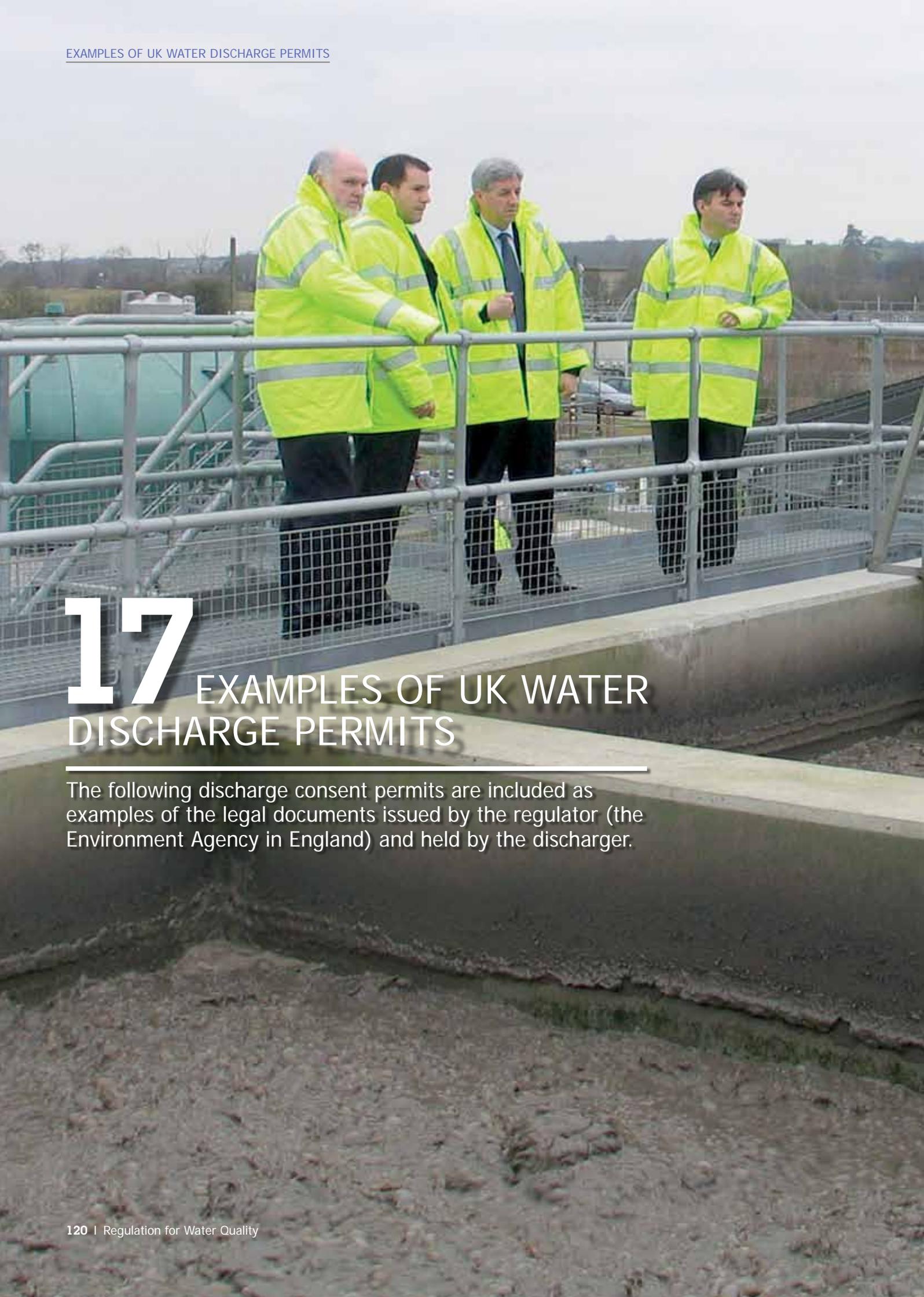
Plans under the Water Framework Directive implies a six year cycle for all permits for discharges that are made to waters of less than Good Status.

Compliance Assessment, Enforcement and Review principles are set out in Chapter 11 of Defra's [Environmental Permitting Regulations Core Guidance](#).

The principles cover:

- Compliance assessment
- Risk-based compliance assessment
- Methods of compliance assessment
- Enforcement
- Enforcement notices
- Suspension notices
- Prosecutions
- Revocation
- Remediation
- Enforcement against the Crown
- Ongoing review
- Variation of conditions by the regulator
- Permit reviews.



A photograph of four men standing on a metal walkway at a water treatment plant. They are wearing high-visibility yellow jackets. The background shows industrial structures and a cloudy sky. The foreground shows a concrete channel with turbulent, brownish water.

17

EXAMPLES OF UK WATER DISCHARGE PERMITS

The following discharge consent permits are included as examples of the legal documents issued by the regulator (the Environment Agency in England) and held by the discharger.



17.1 SCOPE OF DISCHARGE CONSENTS / STAND-ALONE WATER DISCHARGE ACTIVITIES.

Permits for effluent discharges to inland waters in the UK, known as 'consents', have been required since the 1950s, under water pollution laws. In England and Wales there are about 60,000 consented discharges. Some, for large industrial discharges, have previously been subsumed into environmental permits issued under the IPPC and Waste Regulations. Since 2010, when the discharge consent regime came under the

Environmental Permitting Regulations, all extant discharge consents became 'environmental permits for stand-alone water discharge activities'. The majority have not yet been reviewed to meet the EPR Standard Conditions template for stand-alone water discharge activities. A 'stand-alone water discharge activity' is the rather curiously inaccurate name adopted by Defra lawyers in describing, for Environmental Permitting Regulations purposes, a discharge to controlled waters of sewage or trade effluent or 'other matter' from an activity that is not otherwise caught by the Regulations ▶

◀ i.e. not an IPPC installation or waste site. ‘Stand-alone effluent discharge activity’ would more accurately describe the discharge.

This chapter provides a brief summary of some existing discharge consents/ stand-alone water discharge activities.

17.2 SMALL SEWAGE TREATMENT PLANTS, AND COOLING WATER OR HEAT EXCHANGER DISCHARGES TO SURFACE WATERS

The majority of stand-alone water discharge activities (WDA) are for small sewage treatment plants serving small developments in areas where there is no main sewerage provision, generally rural areas. For small treatment plants in the range 5m³ to 20m³ the Environment Agency has undertaken generic risk assessments, and consulted on proposed Standard Rules for such plants. Similarly, generic risk assessments have been undertaken for discharges of certain types of cooling waters and from heat exchangers, and Standard Rules have been formulated for these.

Provided the operator can satisfy certain environmental and operational criteria set out in the Standard Rules they are eligible to have a Standard Permit, attracting a reduced application and subsistence charge. Details of [Standard Permits](#) are provided on the Environment Agency web site.

Copies of these downloaded pages and the relevant water discharge activity documents (Standard Rules, Generic Risk Assessment, application forms) are available from the link [here](#).

The generic risk assessment upon which the Standard Rules are based covers human health, chemical and biological water quality, and protected sites and species.

In summary, the Standard Rules require that:

- The Discharge cannot reasonably be made to public sewer.
- The operator may discharge domestic sewage with a maximum daily volume between 5 and 20 cubic metres per day to surface waters.
- The sewage must be domestic sewage containing no trade effluent and it must be treated by a secondary treatment plant that is sized, designed and constructed according to a set standard, and managed, operated and maintained in accordance with the manufacturer’s recommendations.
- The discharge must only be made to a watercourse that normally contains water throughout the year.
- The discharge must not be made in close proximity to a designated sensitive water or nature conservation site.

The Standard Rules Permit identifies the operator and the location of the discharge. Its conditions are simply to comply with the relevant set of rules. A copy of the template used by the Environment Agency for Standard Rules Permits can be accessed [here](#).

17.3 TRADE EFFLUENT DISCHARGES TO SEWER

In the UK many industries discharge their trade effluent to a public sewer rather than fully treating on site and discharging to a watercourse under an environmental permit. The public sewer terminates at an urban waste water plant designed to treat all the incoming domestic and trade effluent, regulated under the Urban Waste Water Treatment Directive.

Sewerage and sewage treatment have been privatised in England and Wales. There are





10 privately owned sewerage undertakers providing public sewerage and treatment for approximately 98% of the population.

Under the Water Industry Act 1991 the sewerage undertakers act as regulators, controlling the input of trade effluent from industry to their systems. On application they issue permits known as Trade Effluent Consents to industrial dischargers. These can specify limits on the timing of discharge, content, pH and temperature, and can require flow and other monitoring activities by the discharger. They are analogous in many ways to the environmental permits issued by environmental regulators for discharges to surface and ground waters. The sewerage undertaker proportionately charges the industrial discharger for receiving the effluent into the sewer, and treating the polluting load it represents (in admixture with other urban waste water) at the sewage treatment plant, including resultant sludge treatment. Any disputes regarding trade effluent permits are handled by the water industry regulator OFWAT.

The industry can then decide whether to pay the sewerage undertaker to treat the waste or to construct an on-site facility and treat before discharge, or even better (if possible), to invest in improved production process systems to prevent the generation of waste in the first place. Where the latter option is not feasible it is often in the mutual interest of the sewerage undertaker, industrialist and environmental regulator that the trade effluent is discharged to a sewer for treatment rather than being treated on site. The sewerage undertaker gets a reasonably stable or predictable biodegradation load from the trade discharge which can help mitigate treatment instabilities due to population behaviour or rainfall, and gets a faster rate of return on investment in treatment

technology. The business minimises their own treatment costs, and avoids having to install and operate possibly quite complex plant that is well outside the normal suite of skills for that industrial sector. The environmental regulator avoids the risk to the local water environment (often a small watercourse offering low dilution) of trade effluent treatment failure.

On the negative side, poor performance by industrial dischargers can seriously damage sewerage systems and treatment plant. Commercial pressures for income generation through trade effluent charges may tempt some sewerage managers to accept trade effluent loadings that come close to, or exceed, the design capacity of the treatment plant, resulting in non-compliance of the plant with its environmental permit, and possibly a deterioration of water quality. Housing and commercial development may place additional flows into the sewer carrying the trade effluent, the net effect of which is to cause downstream combined sewer overflows to operate early after rainfall, discharging a more concentrated 'storm' sewage to watercourses that have not risen sufficiently in flow to accommodate the transient load.

In the case of PPC installations discharging to sewer, both environmental regulator and sewerage undertaker have a regulatory interest. The environmental regulator limits the emissions to the environment from the installation, taking into consideration the treatment that will be afforded by the urban waste water treatment works. The sewerage undertaker is obliged to include the environmental regulator's limits in the trade effluent consent for the discharge to the sewer, but may make them tighter in order to protect health and safety and operational performance of the sewerage system and treatment processes. The nature and composition of the trade ►



◀ effluent may also result in limits for specific chemicals being put on the urban waste water treatment works discharge permit and/or sludge treatment emissions. If the water company is found to have breached its consent and polluted the river, it will be prosecuted by the environmental regulator. However, if the sewerage undertaker can prove that the industrial enterprise exceeded its trade effluent consent to the sewer it may avoid prosecution by the environmental regulator, and may itself prosecute the industrial enterprise, even though that enterprise is a customer.

In the UK the majority of industrial discharges are to sewer and so are regulated largely within the context of private company relationships. The balance of these relations is different in different countries in Europe, for example in Italy

it is normally the case that each industry discharges direct to the environment and manages its own waste treatment and has its own permit relationship with the environmental regulator. The specific legal framework there is less conducive to commercial relationships between private enterprise and the mostly municipal wastewater departments.

The UK trade effluent discharge consents are not openly published on web sites in the same way as regulated industrial consents. However, the information related to them is available on request from the water companies.

Further information on trade effluent consents is available at the following links:

- Netregs - [General information on Trade Effluent Permits](#)

- Ofwat - [Trade Effluent Charges](#)
- Water UK - [Water UK Revised Guidelines for Trade Effluent Discharges and Charging](#)
- Sewerage Undertakers – access the web link [here](#).

The Water UK Guidelines include example trade effluent applications and consents.

17.4 TRADE EFFLUENT DISCHARGES TO THE WATER ENVIRONMENT

Where a sewer is not available for trade effluent reception, a discharge of trade effluent to surface water or to groundwater may be permitted by the environmental regulator. If the business activity is of sufficient size to qualify for control of emissions under IPPC the discharge will be included under a PPC environmental permit. If the effluent is generated as a result of a waste management activity the discharge will be included under a waste management environmental permit. If the discharge comes from neither of these, the discharge may be permitted as a ‘stand-alone water discharge activity’.

The majority of such discharges are likely to require bespoke permits, with conditions assembled from standard wording but with individually determined limits because of the nature of processes used, available receiving water capacity, etc. Trade effluent permits may also be issued for temporary discharges such as for effluents arising during construction.

Certain common types of trade effluent discharge may be eligible for Standard Rules permits. Currently there is a Standard Rules permit available for [Cooling Water and Heat Exchangers](#).

17.5 POSITION STATEMENTS – FOR LOW RISK DISCHARGES

The Environment Agency has decided that for certain low risk discharges no permit or registration is necessary, provided that the operator can ensure that no pollution results from the activity. Such activities are dealt with via Position Statements. These describe the type of discharge and the circumstances under which it will not be treated as a water discharge activity, and therefore not requiring permit or registration.

The Environment Agency has produced a [Position Statement for domestic open loop heat pumps discharging to a surface water course](#). A downloaded copy is provided [here](#). The Environment Agency has also produced a [Position Statement on temporary water discharges from excavations](#). A downloaded copy is provided [here](#).

17.6 URBAN WASTE WATER TREATMENT

The Urban Waste Water Treatment Directive defines ‘urban waste water’ as domestic waste water from human metabolism and domestic activities which may be mixed with industrial effluent and/or surface water runoff. Urban waste water has a biodegradable load that needs to be reduced prior to discharge to a watercourse. The Directive uses ‘Population Equivalent’ (p.e.) as the measure of biodegradable load. It requires that where the biodegradable load due to urban waste water, or where, (for certain industrial sectors) the biodegradable load from individual factories exceeds 2000 p.e., a sewerage system (collecting system) shall be provided. This shall connect to an urban waste water treatment works normally providing at least secondary treatment to a defined standard. ►



◀ The Directive allows that there may be the need for storm overflows of dilute untreated sewage to prevent flooding of properties but that pollution shall be limited.

The majority of settlements, villages, towns and cities in the UK are served by sewerage systems which drain sewage generated by domestic functions and trade effluent generated by industry and commerce, often in admixture with surface water runoff, to an urban waste water treatment works. At the treatment works most of the solid component is separated from the dissolved (primary treatment) and the dissolved and remaining suspended solids then receive aerobic secondary treatment, which significantly reduces the amount of solids, oxygen demand, and ammonia content of the sewage. If the receiving water has been identified as 'sensitive', further layers of treatment (tertiary treatment) may be needed to further reduce oxygen demand, ammonia, nutrients or bacteria. The sludge solids resulting from the treatment stages are subject to further treatment, usually aerobic or anaerobic digestion, to make the resulting biosolids easier to handle and fit for recovery of value as agricultural fertilizer, or as feedstock for incinerators. In some cases the digesters provide the treatment plant with combined heat and power (using the methane generated by the sludge treatment process). The sludge related processes may, if they are of sufficient scale, be regulated under IPPC as

waste related activities, but the waste water treatment remains outside IPPC control because of the UWWT Directive requirements.

Sewerage systems and urban sewage treatment works are subject to the requirements of the [Urban Wastewater Treatment Directive](#). In the UK the Directive is implemented by the relevant Urban Waste Water Regulations applicable to England and Wales, Scotland, and Northern Ireland. Downloaded copies of the England and Wales [Urban Waste Water Regulations](#) 1994 and as [amended](#) in 2003 are provided here.

Defra has produced a booklet on [implementation of the UWWT Directive](#). This was last produced in 2002 and was due for revision in 2012. The [European Commission reports](#) biannually on data submitted by Member States pursuant to the UWWT Directive.

The UK Regulations place the burden of providing, operating and maintaining collecting systems and treatment plant on sewerage undertakers. These are private companies in England and Wales, and state-owned in Scotland and Northern Ireland. The environmental regulators are responsible for ensuring that the systems are delivered to time and perform in accordance with the UWWT Regulations.

In England and Wales the government, Ofwat, sewerage undertakers and Environment Agency have agreed a standard wording for the requirements



of the UWWT Directive to be set in all relevant consents (now 'stand-alone water discharge permits'). These are separate from the bespoke requirements, e.g. for ammonia, BOD or metals.

A typical consent (now stand-alone water discharge permit) for a major urban waste water treatment plant is provided in the links below. The town of Swindon is located towards the upper end of the Thames catchment. It has had a sewage treatment works since the early twentieth century. The town has greatly expanded, and the consent was successively modified to reflect the increased load received and the need for tighter standards to protect both the receiving water and downstream uses, including potable water abstraction. The examples include [facsimile copies of the consents and modifications](#), including the standard UWWT wording, going back to 1989, plus the [latest \(electronic\) variation of permit](#).

Initially for UWWTD purposes only, but now for all sampling requirements, the sewerage undertakers monitor their effluents using composite samplers or continuous instrumentation, and report the data to the Environment Agency. The Environment Agency assesses the data for compliance and posts it on the Public Register. Periodically the data is collated and sent to Defra for onwards transmission to the European Environment Agency as part of the UK data submission on UWWT Directive compliance. ■

18

EXAMPLES OF IPPC PERMITS

These permits control emissions to air, land and water from installations that are designated under the IPPC Directive – mostly large industrial plant. The permits address the whole site, inputs of raw materials, processes, and waste and emissions from the processes.





18.1 WHAT DO BESPOKE IPPC PERMIT CONDITIONS LOOK LIKE?

For all bespoke permit applications the Environment Agency uses a single permit template. The template has generic conditions that apply to all applications and 34 annexes that provide extra conditions depending on the activity. The generic wording for conditions is used in preference to drafting from first principles. If there are truly unique circumstances relating to a particular location or activity then specific conditions may be included. The template includes provisions and layouts for Tables and Schedules. The detail wording and structure of these, though standardised as far as possible, will vary according to the specific environmental challenges that are identified as a result of the Application.

The Schedules and Tables that form part of the permit include specifically determined emission limits, monitoring and reporting requirements, and other site-specific information.

The template uses colour coding for Environment Agency staff:

- **Black** text is fixed text.
- **Red** text is optional but the wording is fixed. Some red text conditions contain optional text that has to be amended by Environment Agency staff as appropriate.
- **Blue** text is example text and is replaced with site-specific conditions by Environment Agency staff.

There is a web link for the [generic template](#) which includes all the annexes.

The generic permit template with all 34 annexes has been downloaded and can be accessed [here](#) together with a [file listing the annexes](#).

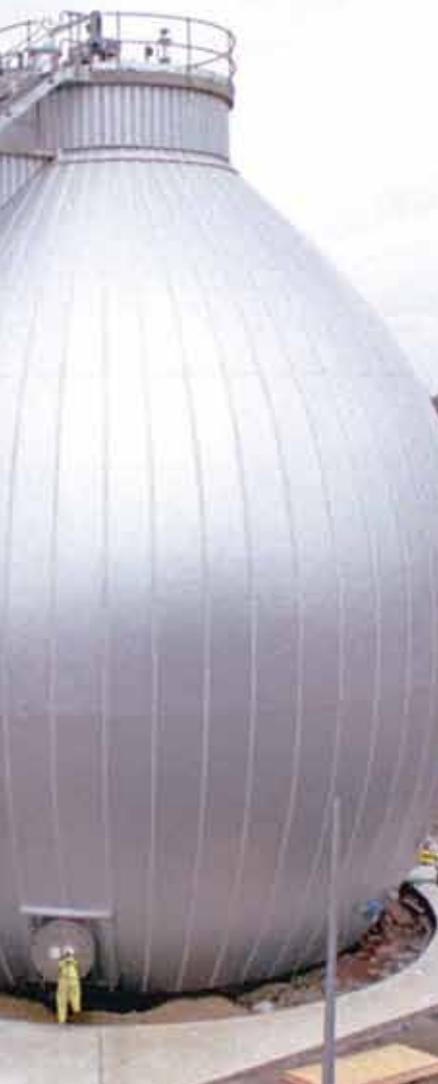
Annexes 3 to 19 are relevant for sectors that are subject to IPPC control.

An example of an actual environmental permit for an industrial installation regulated under IPPC is provided [here](#). It relates to a major oil refinery in the UK and includes controls on emissions to air, water and land.

18.2 STANDARD IPPC PERMITS

Standard permits are available for certain IPPC installations that have been identified as low risk to the environment. These qualify for control under IPPC because of the hazardous nature of materials used or processes involved, but which have a low risk of releases to the environment. Operators may apply for a standard permit and provide evidence that their installations conform with the requirements of the Standard Rules applicable to their sector or business.

The Standard Rules for low impact installations are available on the Environment Agency web site [here](#), and a downloaded copy can be found here together with the [Standard Rules](#) and [Generic Risk Assessment](#).



3D water quality modelling of reservoir

