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Pollution prevention and control

The Integrated Pollution Prevention and Control (IPPC) Directive sets out to prevent significant pollution from large industrial activities. Emissions to air, water and land, and the consumption of energy and other resources must be considered in an integrated way to provide a high level of protection for the environment as a whole. It is arguably the first legal instrument to require sustainable production techniques.

Aims and enforcement

The IPPC Directive was implemented in the UK by the Pollution Prevention and Control (England and Wales) Regulations 2000. Similar legislation is being developed for Scotland and Northern Ireland, and for the offshore oil and gas industries. The Regulations require operators to:

- take all appropriate preventative measures against pollution;
- avoid waste production at source;
- recover waste or, where this is not reasonably practicable;
- dispose of waste in such a way as to minimise its environmental impact;
- use energy efficiently;
- prevent accidents and limit the consequences of those that occur; and
- avoid land contamination.

Enforcement responsibilities are shared between the Environment Agency and local authorities. The Agency will regulate those installations with a higher pollution potential and the new sectors of intensive farming and food. The three regulatory categories are;

- Part A1 activities - those regulated by the Environment Agency under IPPC;
- Part A2 activities - those regulated by local authorities under IPPC; and
- Part B activities - those regulated by local authorities under the existing Part B local authority air pollution control.

Who are covered?

Not surprisingly, industries commonly considered as the big polluters such as energy production, metal refining, mineral activities, chemical factories and waste disposal, come within the PPC regime. Large intensive farming and the food and milk sectors have been exempt from environmental controls but they now come within its ambit.

The installations covered by the Regulations are defined in different ways. Sometimes it is by weight - for example "the incineration of any waste...in an incineration plant with a capacity of one tonne or more per hour". 'Capacity' is taken to mean historical throughput rather than a theoretical maximum. Other definitions simply refer to the type of activity, for example "recovering carbon disulphide".

The definition of 'installation' is such that it does not necessarily mean a whole site or factory. For example, if there are multiple occupants on the same site it is important to define clearly who has responsibility for what.

When to apply for a permit

The operator of a new installation is required to apply for a permit before starting operations. But for existing installations, the Regulations allow sectors to apply for permits in a phased manner up to 2007 with the paper, pulp and board-manufacturing sector leading the way. The rest of industry will watch with great interest and learn from their experiences.

If operators who haven't applied for a permit for an existing installation make a 'substantial change' they must apply for the changed part only. A 'substantial change' is one that may have a significant negative effect on human beings or the environment. Simply increasing emissions to air may not necessarily constitute a substantial change. Operators will have to take into account the actual environmental effects including the releases of heat, noise and vibrations, energy use, consumption of raw materials and the risk of accidents.

All changes to installations that already have a permit will need prior authorisation from the regulators before those changes can come into operation.

Best Available Techniques

The key duty under the Regulations is the use of Best Available Techniques (BAT) for preventing or minimising pollution. 'Best' denotes the most effective in achieving a high level of protection of the environment as a whole. An 'Available' technique is one developed sufficiently for use in the relevant sector under economically and technically viable conditions and is reasonably accessible. 'Techniques' includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned. BAT is a site-specific concept.

The level at which costs will be deemed excessive by the regulatory authorities has not been determined. The EU and UK government are struggling to produce sensible guidance on costs and benefits and industry awaits the outcome with interest.

When trying to determine BAT, operators will need to consider a range of issues including:

- use of low-waste technology;
- use of less hazardous substances;
- recovering and recycling of waste;
- methods of operation proven on an industrial scale;
- technological advances and changes in scientific knowledge and understanding;
- the nature, effects and volume of any emissions;
- the consumption of raw materials and water;
- the energy efficiency of the process;
- the need to minimise the overall environmental impact; and
- the need to prevent environmental accidents.

Existing installations are unlikely to meet the requirements of BAT without some upgrading. Under PPC, a permit will be issued to make them legal but it will include an improvement programme. This will require operators to carry out investigations and feasibility studies from which the regulators will determine upgrading measures and timetables.

The EU has set up a group of experts working in Seville, Spain to produce technical guidance entitled 'BAT Reference Documents' - abbreviated to BREFs. Technical working groups of 30 to 60 experts from Member States and industry are producing these weighty tomes. Several BREFs have already been published and more are expected. They are freely available on the Internet at <http://eippcb.jrc.es> but be warned, the more recent ones are some 800 pages long! BREFs only provide guidance - they are not universal definitions of BAT. In practice each case will be judged on its merits against local criteria.

Waste minimisation and disposal

Operators should review the design of their processes thoroughly and critically to determine whether their operations prevent pollution at source. Should a different process or combination of processes be used to make the same product? Could it be done differently to reduce energy and to minimise raw materials use and the amount of waste produced?

There is a conflict between the PPC Regulations, the Landfill Directive and the Waste Management Licensing (WML) Regulations. The PPC regulations currently require existing qualifying landfills to obtain a permit by 2007. Yet the Landfill Directive must be transposed into UK law by 16 July 2001. Additionally, all landfill sites are subject to the WML Regulations but approximately 930 of them will not be subject to PPC. With these timetable and scope conflicts the UK government is consulting on how and when to bring all relevant landfills under a common legal structure within the PPC Regulations.

Energy efficiency

There is a duty under the PPC Regulations to use energy efficiently and in the UK, the Climate Change Levy comes into force in April 2001. The Levy is a tax to encourage industry, commerce and the public sector to reduce emissions of greenhouse gases and to promote energy efficiency. The estimated £1 billion raised by the Levy is to be channelled back to business via a 0.3% reduction in employer's National Insurance contributions, thereby discouraging pollution and promoting employment.

Discounts of 80% of the Levy will be available to energy intensive users who sign up to energy saving targets agreed between the UK government and the relevant trade association. This discount will apply only to those processes subject to the PPC Regulations even if their throughput is less than the relevant threshold.

Most processes can be made more energy efficient, but at a cost. It is not clear yet what investment and payback criteria will be considered acceptable but it is likely that industry will be 'encouraged' strongly to invest significant sums at payback rates it would not normally accept.

Whether under the Climate Change Levy or under the PPC Regulations, it seems that the larger UK companies will need to improve their energy efficiency.

Ecology

Of increasing importance is the effect of industrial processes on ecological systems. In wetland areas there is considerable sensitivity regarding water abstraction. In other areas there could be great sensitivity to emissions of certain compounds to air and water. Overall the concept of biodiversity is of great importance and one that is relatively new to industry. The regulators will be required to consult English Nature, MAFF and other interested parties on ecological impacts and operators of permitted installations may need to carry out ecological risk assessments.

Groundwaters and land contamination

The PPC Regulations contain an explicit requirement to prevent pollution of groundwaters. Operators can expect to carry out site assessments and geological and hydrogeological surveys to determine whether the soils provide sufficient purification to prevent pollution. This could incur major costs.

There is also an explicit requirement to avoid land contamination during operations. This is sensible and ought not to be a shock. However, the sting in the tail is the duty to return the site to a satisfactory state

once the installation has closed. Questions to be answered in advance are ‘how contaminated is the land now?’ and ‘to what standard will the land need to be remediated?’ Early guidance has been provided by the Environment Agency and can be downloaded from <http://www.environment-agency.gov.uk/epns/package.html>

Monitoring and control

PPC introduces a requirement for extensive monitoring and reporting. The consumption of raw materials and emissions to air, land and water will need to be quantified. All monitoring data is to be reported to the regulator and placed on a public register. This data, whether discrete or continuous, must be archived for a number of years thereby requiring robust archiving systems - companies failing to archive past data may be vulnerable in any court appearances.

Another novel feature is the duty to take the necessary measures to prevent accidents and to limit their consequences. As part of the permit application, operators will be required to prove that they have adequate controls and suitable, routinely rehearsed, emergency procedures.

Managing the requirements

Early guidance from the Environment Agency makes it clear that operators of PPC installations will need to give confidence that the many and varied duties under the Regulations will be complied with. Externally certified and formally documented management systems to ISO14001 or EMAS should satisfy that need. Companies without 14001 or EMAS will need to establish equivalent systems during the first few years under the PPC regime.

Public involvement

All operators of PPC installations will be obliged to disclose data on their emissions. This data will be compiled by the regulators and published on the Internet and in other places. In some cases this could lead to the occasional public enquiry regarding the pollution and health effects of what is being emitted.

It is clear that industry can not ignore the public, especially where environmental issues are concerned. The public has a right to understand what is taking place in industry, they may be affected by emissions and nuisances. Politicians take a keen interest in such matters and can make life difficult for organisations who show undue care for local communities. In short, industry is now firmly accountable for its actions to the public and the public expects high standards.

Summary

The PPC Regulations place wide-ranging duties on operators. A considerable amount of management time and resource will be required to apply for a permit. BAT will involve a substantial workload and should not be underestimated. The regulators are likely to probe every aspect of the installation’s operation and be far more intrusive than in the past. The public will have an increasing interest in the operator's activities and will demand high standards. In some ways the public will be as influential as the regulators. The costs of complying are likely to be significant, but the costs of not being prepared are likely to be far higher!

References

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Note

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