

Integrated regulation – experiences of IPPC in England and Wales

J. Gray¹, T. James¹ & J. Dickson²

¹Environment Agency, Bristol, UK and ²Atkins Environmental Sustainable Solutions, Bristol, UK

Keywords

BAT; emissions; industry; integrated; IPPC; permitting; PPC; regulation.

Correspondence

T. James, Environment Agency, Block 1,
Government Buildings, Burghill Road,
Westbury-on-Trym, Bristol, BS10 6BF, UK.
Email: tim.james@environment-agency.gov.uk

doi:10.1111/j.1747-6593.2006.00048.x

Abstract

Environmental regulators around the world are seeking out new ways to regulate polluting industries that can deliver higher levels of environmental protection without increasing overall cost. Integrated regulation has been shown to offer many advantages over traditional single-media approaches and this has led to its widespread uptake across the European Union (EU). The United Kingdom (UK) is seen as a leader in the field, having been progressing towards full integration for over 15 years. This paper seeks to share some of the experiences gained by the Environment Agency for England and Wales, with others struggling with the complex policy, technical and legal issues that will be encountered along the way.

Introduction

Historically, pollution control in the United Kingdom (UK) and many other countries has been through a range of single-media regimes, designed to control end-of-pipe emissions. These have usually been based on a system of permits allowing industry to release pollutants up to preset environmental limits.

While providing basic environmental protection, single-media regulation does not take into account the complex interrelationships that exist between environmental media. This means that judgements cannot readily be made on the receiving capacity of the different media to a suite of emissions. There is also a possibility of strong regulatory control in one media resulting in emissions being shifted to a less well-protected media. This was borne out by the findings of the 5th Royal Commission on Environmental Pollution Report (1976). Some problems with single-media regulation also apply to multi-media regulation, that is the permit imposes limits on emissions to each media but does not specifically consider their interrelationships.

True integrated regulation moves beyond multimedia permitting, to a regulatory system that extends the control from emissions to a wider range of environmental effects including resource efficiency, nuisance (e.g. noise and odour), and soil and groundwater protection. This approach addresses the full range of environmental issues that make up the environmental footprint of a facility, focusing particularly on pollution prevention. It also goes beyond permitting, looking at the full regulatory cycle including compliance, enforcement and review.

Pollution control in the UK – the journey towards integrated regulation

Until the 1970s, pollution control in the UK was characterised by a range of disconnected legislation concerned with controlling releases to specific media, regulated by different bodies. Legislation had mainly been formed in reaction to specific problems; for example, the Clean Air Act 1956 was introduced following the London smogs of 1952. The lack of a coherent approach led to piecemeal legislation, as well as a fragmented allocation of duties and responsibilities. This was confusing for industry, the regulators and the public.

The 1976 Royal Commission recommended that a single unified body be set up to administer integrated regulatory controls and that the concept of the best practicable environmental option (BPEO) should be adopted. This would allow the environmental outcomes of a process to be assessed and emissions made to the environmental media which would lead to least overall damage to the environment.

The creation of Her Majesty's Inspectorate of Pollution (HMIP) as the unified regulator allowed the development of the UK's first 'integrated' approach to pollution control (IPC) through the Environmental Protection Act 1990. Many elements of IPC drew on previous legislation, notably the Alkali Works Act 1906 and the Health and Safety at Work Act 1974. The industrial sectors regulated by IPC were largely derived from those covered in previous legislation.

The basis of IPC was that an industrial operator required an authorisation to operate a prescribed process,

and that a range of factors should be considered when determining an authorisation, including the impact of releases on all three media (air, water and, to a lesser extent, land). IPC also introduced the concept that BATNEEC (best available techniques not entailing excessive cost) should be applied to each element of a process. This built on the best practicable means (BPM) approach, as well as the requirement that the BPEO should be applied when considering the effect of releases to the environment as a whole (i.e. across all media). IPC was implemented in England and Wales between 1991 and 1996, following a phased timetable for applications, according to the industrial sector.

Although IPC controlled releases to three media, the generation of waste was not expressly considered and waste disposal remained under the control of the Waste Regulation Authorities. In addition, IPC focused on air emissions, probably reflecting the background and expertise of HMIP's inspectors. Water emissions continued to be controlled mostly through existing discharge consents. The prevention of emissions to land was largely ignored, for example there was little guidance on the containment of chemicals.

Although IPC may not have established full integration, it was a significant step and established three important principles:

1. Setting emission limits for a particular site based on the lowest levels that could cost effectively be achieved through the use of the BATNEEC.
2. The periodic review of authorisations so that emissions could be reduced as technological advances allowed.
3. The introduction of cross-media permitting to industry.

The Integrated Pollution Prevention and Control Directive

In 1996, the European Commission (EC), building on the UK's IPC, adopted the Integrated Pollution Prevention and Control Directive (IPPC) [96/61/EC].

Article 1 defines its purpose as:

... to achieve integrated pollution prevention and control of pollution arising from activities listed in Annex I. It lays down measures to prevent, or where that is not practicable, to reduce emissions in the air, water and land from the above mentioned activities, including measures concerning waste, in order to achieve a high level of protection of the environment taken as a whole ...

The Directive's aims are achieved through a system of integrated regulation in member states. Permits are based on the application of the best available techniques (BAT) and control emissions to all three environmental media,

as well as raw material and energy use, waste generation, noise and odour, and protection of soils and groundwater.

The EC has established bodies to identify BAT, produce guidance and clarify areas of uncertainty in the Directive. The Information Exchange Forum (IEF) is made up of member states' representatives who agree on the programme for, and extent of, BAT reference documents (BREFs), which are produced by the European IPPC Bureau in Seville by expert secondees from the member states. There is also an IPPC Experts Group (IEG), which debates areas of uncertainty in the Directive and provides guidance to the EC. IMPEL, a European Union (EU)-wide regulator's network, also works to promote best practice across the EU. The purpose of all these groups is to promote a level playing field and a consistent approach across the EU. The UK is represented in these groups and has played a key role in the production of BREF documents.

UK implementation of IPPC

In the UK, the IPPC Directive is implemented through the Pollution Prevention and Control Act 1999 and relevant regulations – the PPC regime. In England and Wales the principal regulator is the Environment Agency, with local authorities responsible for some lower risk installations. Scotland and Northern Ireland have slightly different arrangements.

The most significant change from IPC to PPC is the coverage. It is extended from just emissions to wider environmental impacts, resource and energy use, noise and odour, and soil and groundwater protection. In addition, the new regime covers whole installations rather than discrete processes, and the range of sectors has been broadened to include industries such as food and drink and intensive agriculture.

In the UK, PPC is being phased in by sector between 2001 and 2007. By April 2006, approximately half of the forecast 4000 permits had been issued by the Environment Agency.

Under PPC, the operator of an existing industrial activity that falls under the regulations is required to submit an application within a specified period. New or substantially changed installations must obtain a permit before they can operate. Applications must contain details of the installation, its surroundings, resource use, techniques, management and ground conditions. In addition, details of the emissions and their control, and effect on environment and human health must be provided.

The application is made available for public scrutiny and the regulator consults relevant statutory bodies. In determining the application, the regulator considers whether the operator is using BAT to minimise emissions

and whether BPEO has been applied. If acceptable, a permit containing emission limits, operational controls, monitoring and reporting requirements and improvement conditions is issued to the operator. Compliance with the permit conditions is monitored and the permit is reviewed periodically to reflect developments in technology and the operation of the installation. Before an installation can close, the operator has to demonstrate that the condition of the site is no worse than it was when the permit was first issued.

The UK's experience of implementing integrated regulation

The UK experience has shown that having a single institution responsible for the implementation of integrated regulation has been crucial to success. A close working relationship between the regulator and the government in the development of regulations was regarded as essential by both parties, and led to the production of more effective, workable legislation.

Implementation of PPC within the Environment Agency was initially by a formal project, overseen by a board of senior managers from across the organisation. The Project Board remained in place until the regime was fully developed, at which point operational implementation transferred to a policy team and mainstream operations.

Critical factors

Accurate workload planning is a key factor in the successful implementation of a major new regime. Implementation involves substantial staff resource for policy development, communications and guidance development, to administer and determine permits and carry out compliance and enforcement. Accurate forecasting of the workload has been difficult and resource intensive, particularly for new sectors, because of the scarcity of information and the reluctance of some stakeholders to be fully engaged in the process.

Phasing the introduction of the regime by industrial sector over the period 2001–2007 has been essential to spread the workload and was a lesson learnt from the introduction of IPC. Some other European countries have not adopted sectoral phasing, with the result that many permits will need to be produced in 2007. This will create a significant peak in workload for the regulators and risks them failing to comply with the Directive time scale, potentially resulting in infraction proceedings.

Although sectoral phasing has helped, there are still significant peaks in workload, notably in 2006/2007 when large sectors, such as combustion and intensive farming, come into PPC. The initial sectoral program was

largely based on the programme for the BREFs. UK PPC sector guidance is based on the BREF documents, so wherever possible implementation dates were structured to fit in with proposed BREF delivery dates. Unfortunately, delays in BREF production have meant that some sectors have reached their application window before the relevant BREF is complete. This has led to uncertainty over what constitutes BAT for the sector.

Other factors were also considered, including:

- the need for experienced industries to go through a new regime first to ease the learning process on both sides;
- the need to allow industries previously unregulated under IPC time to make improvements and understand the PPC process;
- a desire to meet the upswing of business cycles in certain industries, which would make securing improvements easier for all concerned;
- a desire to bring more potentially polluting industries under the new regime earlier than less polluting industrial sectors.

Policy and technical support

Another key element in the successful implementation of integrated regulation is the provision of guidance that clearly describes the information that is required from applicants and defines technical requirements for industry, the public and regulators. The provision of clear guidance adds transparency to the process, improving public confidence and consistency of approach.

The Environment Agency established the cross-functional Interpretation Group to provide high-level guidance on interpreting the regulations and advice on delivery in order to achieve a consistent approach to interpretation and implementation.

In addition, it was decided early on in the process to produce a regulatory package tailored for each sector. This package contains all the guidance and application tools that an applicant requires. The aims of the regulatory package are to

- fully implement the law;
- deliver maximum environmental benefit;
- support operational transparency and consistency;
- promote operator responsibility;
- be simple and cost effective for staff and operators use.

As part of this, application templates have achieved the aim of focusing the information supplied, improving the quality and completeness of applications. One trade-off is that an increasingly prescriptive format does not easily allow individual situations and smaller industrial sectors to be fully catered for and may also encourage simplistic answers rather than the provision of appropriate information. However, one useful feature of PPC is that the

regulator can vary a permit at any time, to take account of information that comes to light at a later date.

Communications and sector management

Sector implementation teams, supported by a sector coordinator, carry out most of the consultation/communication with industry and trade bodies. The communication strategy varies from sector to sector but invariably involves a scoping of the sector to gather information about its structure, geographical and size distribution, along with their preferred methods of communication. Each principal sector also has a sector permitting plan, which seeks to focus regulators and industry on the most important aspects at that time.

The early involvement of trade organisations and other sector representatives in the formation of guidance, establishing BAT and identifying sector-specific issues and concerns, has proved valuable, and significantly aided the introduction of PPC.

Charging

The UK government requires that regulators recover the costs of PPC from the industries they regulate. The costs reflect the levels of control and regulatory effort that must be put in.

Environment Agency charging schemes have changed over time from a flat fee, which did not reflect differing regulatory intensity, to the component approach used to calculate fees for IPC. This approach reflected the complexity of the site; therefore, it was a fairer system, but it did not reflect well the risk and hazard posed by a site nor did it reflect the quality of management.

The Environmental Protection Operator and Pollution Risk Appraisal (EP OPRA) system was introduced in 2002 to address this. It is a risk-based scoring system that takes into account the scale, complexity, location, quality of management and environmental hazard posed by an installation. For most installations, the application and subsistence fees are based on the EP OPRA score, as is the level of regulatory effort put into compliance assessment.

Experience has shown that the costs of permitting are often higher than expected. In part this may be due to poor application quality, but there is a baseline level of effort required to determine any application. Some applications at the lower end of the scale may have fees set at an unrealistically low level.

National permitting teams

National permitting teams (SPGs) were established in 2004, in advance of the predicted increase in the number

of applications as larger sectors came into PPC. The SPGs are staffed by officers seconded from Area operational teams together with new recruits, and operate in multi-disciplinary teams supported by specialists. The use of SPGs has halved the determination time by focusing training on a relatively small number of staff. The consistency of permits has also improved and training has become quicker and more cost effective. There is, however, a drawback; the use of SPGs has made using specialist local knowledge more difficult, although this is mitigated by Area teams contributing to the permitting process.

Compliance and enforcement

Once a permit is issued, compliance and enforcement are carried out by Area teams. Compliance assessment effort is based on the EP OPRA score. The aim is to channel regulatory effort to installations that have the highest risk of pollution, as well as reflecting the scale of the installation. The EP OPRA system has recently been updated to include a compliance rating that is dependent on the regulator's assessment of compliance with permit conditions, using a compliance classification scheme.

Compliance assessment plans (CAPs) are being introduced to identify the compliance assessment tasks and the level of resources that are required. Sector CAPs identify the priority outcomes for each sector and the environmental issues that are likely to require attention. Site-specific CAPs are being introduced for all significant installations. These can be tailored to local issues and objectives, and specify a programme of compliance assessment, in consultation with the operator. The CAP provides a framework for consistent and transparent assessment against permit conditions, which aids resource planning.

Compliance assessment is based on operator reporting, according to the monitoring requirements set in the permit. This is not confined to emissions, but includes performance and resource efficiency data. Operator reporting is supplemented by site visits, auditing operator monitoring and check monitoring as appropriate. Increasingly the responsibility for compliance is being placed on the operator, by requiring them to operate effective environmental management systems, manage environmental risks, optimise resource use, and be responsible for monitoring and achieving improvements contained in the permit improvement plan.

What has been achieved?

The UK has developed an effective system of integrated regulation. This has been achieved through a series of

discrete steps over a long time scale, and has resulted in an experienced regulator, knowledgeable and cooperative regulated industrial sectors, and a system that has formed the basis for the European approach to integrated regulation.

A recent study (Environment Agency 2004) has shown that the resource efficiency savings made by operators regulated under IPC and PPC between 1998 and 2002 included a 25% drop in waste disposal over the period and a 50% increase in waste recovery across England and Wales. It is apparent that both IPC and PPC have had a significant effect on the environmental performance of UK industry, by controlling emissions to all three environmental media, helping companies to identify pollution prevention and resource efficiency opportunities, requiring companies to follow structured environmental improvement programmes, and raising the profile of environmental issues in corporate boardrooms. The introduction of PPC has extended these controls to industrial sectors that were not previously regulated under IPC, and has

done much to initiate environmental improvements in these sectors.

Future development

The future of environmental regulation in the UK is likely to involve greater integration, and may involve the greater integration of regimes and possibly regulators' activities. Areas that may be further incorporated into the existing system of integrated regulation include more waste management and water licensing, although no decisions have been made on these yet.

Acknowledgement

We acknowledge Dr. S.M. Stearn, Former Head of PPC Policy, Environment Agency.

Reference

Environment Agency. (2004) *IPPC & Resource Efficiency – A Review of Progress*. Environment Agency, Bristol.

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