

An In-depth Look at the United Kingdom Integrated Permitting System

Exploring Global Environmental
Protection Perspectives

Executive Summary



Permitting industrial facilities is essential for regulating environmental pollution in the United States (US) and in many nations across the globe. Presently in the US, permitting is carried out through multiple regulatory programs organized by environmental media (air, water, land). In contrast, an increasing number of governments, most notably in the European Union (EU), have been transforming their industrial pollution permitting regimes to an integrated approach, thus regulating facilities in a more comprehensive and holistic way.

At the invitation of the UK Environment Agency (EA), the US Environmental Protection Agency (EPA) initiated the Integrated Permitting International Collaboration Effort (IP ICE). The UK EA has been a dedicated partner throughout the effort. The objective of the effort was to study the EU-mandated Integrated Pollution Prevention and Control (IPPC) permitting system as implemented in the UK. In order to carry out the study, a network was created consisting of interested EPA and state environmental agency representatives, as well as a multi-disciplinary research team led by EPA's National Center for Environmental Innovation (NCEI) and including members from EPA headquarters, EPA regional offices, and a state. The research team embarked on a detailed analysis of the UK IPPC permitting system. In order to accomplish this undertaking, the research team drew on available literature and personal interactions and site visits with EA officials, UK industry representatives, and members of the IP ICE network.

A comprehensive report is the product of EPA's collaborative research effort.¹ The report introduces the historical and cultural setting for the UK integrated permitting system and provides information regarding the legal and organizational permitting structure and function. In order to understand the UK system, detailed information is offered about the permitting process and permit requirements. In addition, a comparative analysis is provided of several individual permits in the UK and US for the pulp and paper sector and the specialty organic chemical sector. Finally, the report delivers a series of findings regarding features of the UK permitting system that are of particular note to US observers. This executive summary very briefly covers the introductory and analytical elements detailed in the full report and focuses instead on the report findings (in a summarized fashion).

The report is not intended to render overall judgments on the relative merits of either the US or UK system, and it does not represent or recommend changes in any current EPA permitting policy, practice, or procedure. Rather, the report provides a foundation for – and hopefully will further stimulate – additional consideration of innovative permitting practices in both countries.

UK Integrated Permitting

The UK integrated approach to permitting is more than just a consolidation or “stapling together” of single-media permits. An integrated permit addresses each aspect of a facility's operation that has an environmental impact, including energy, water, and raw material use. Integrated permits also address pollution prevention, multi-media or cross-media interactions, facility management, and long-term effects of facility operation.

¹ The full report and other materials can be found on the EPA website at www.epa.gov/permits/integrated.htm.

Integrated permits were officially mandated in the EU in 1996 by the IPPC Directive. The IPPC Directive establishes a goal of first preventing emissions to air, water, and soil (also taking into account waste management) and second (where prevention is not practicable) reducing emissions “to achieve a high level of protection for the environment as a whole.” The IPPC Directive also defines key permitting terms (including pollution and Best Available Techniques – BAT), creating a permitting institution with common terminology EU-wide. The UK translated the IPPC Directive into national law, passing the Pollution Prevention and Control Act of 1999 (PPC). Building on the preceding UK Integrated Pollution Control regime, the PPC Act provides the statutory framework for issuing integrated permits in the UK. The resulting UK IPPC system is managed and implemented using a risk-based and sector-based approach.

The central component of an IPPC permit is the application of the common standard BAT designed to prevent, abate, and control substance emissions to all three environmental media (air, water, and land); address sensory effects and non-substance emissions (e.g., odor, noise, heat, vibration); and ensure sound facility management practices and sustainable use of natural resources. BAT in the UK context is a broader concept than similar standard-setting terms in US statutes (which tend to emphasize specific technology-based pollution controls). Determination of BAT in a UK permit relies on EU sector-specific technical guidance (BAT Reference Documents or BREFs) and corresponding UK Technical Guidance Notes, while also taking into account site-specific factors, such as geographic, local, and facility-specific conditions.

Given the expanded scope of the IPPC Directive, IPPC permits contain a number of provisions not found in most US media-specific permits. A typical IPPC permit includes conditions for the following:

- Management techniques (e.g., use of an environmental management system)
- Materials inputs
- Main activities and abatement
- Emissions to groundwater
- Waste handling
- Waste recovery and disposal
- Energy
- Accidents and their consequences
- Noise and vibration

- Monitoring
- Decommissioning
- Emission benchmarks (including emission and effluent limits like those in US permits)

To obtain a permit, a UK facility operator must demonstrate in the permit application that BAT has been, and on an ongoing basis will be, systematically applied to all activities with environmental consequences. Final permit terms are fashioned by the EA subsequent to further information exchange and negotiation with the operator as well as review and comment by government and public stakeholders. The EA also maintains a public register throughout the permit process and life of the permit.

The EA relies on the Environmental Protection Operator and Pollution Risk Appraisal (EP OPRA) tool, which provides approximate risk information, to plan and manage the internal EA permitting workload and resources, target inspection and monitoring activities, and set permit fees. EP OPRA does not assess risk directly but consists of a scoring system based on five attributes that gauge the potential for environmental hazard and demand for agency resources from the facility, operator performance, and compliance. EP OPRA is a central component to what the EU and UK term “better” and “modern” regulation, that is, the government-wide effort for regulation to be risk-based, targeted, and proportionate.

Lastly, the UK culture itself supports a collegial partnership between the regulatory agency and the regulated community. The cooperative approach relies on continuing dialogue and consensus-building between the EA and an individual regulated facility, beginning with permit application and lasting throughout the life of a permit. For example, while the PPC regulations contain formal enforcement mechanisms, the EA uses such actions rarely and tends to rely instead on a setting of mutual cooperation. Generally, the EA views its primary objective as ensuring the safety and protection of the environment and public health rather than punishing polluters.

Findings

As noted earlier, EPA’s goal for the report is to foster increased understanding both of the IPPC system as a whole and of specific practices that, if successfully tested in the context of US permitting systems, might improve permitting in this country. It is important to remember that the UK system operates within a social, political, and historical context different than that of the US. Therefore, it is unlikely that the UK permitting model could be replicated in the US wholesale, even if that were deemed desirable. Rather, it is the hope of the research team that these findings might stimulate thinking about ways to improve the US environmental permitting system.

To that end, certain aspects of the UK integrated permitting system may interest policy and permit experts alike. The findings that follow may assist the reader in (1) better understanding and assessing the potential benefits and drawbacks of an integrated system in the context of the US permitting approach; (2) identifying additional research and analysis on integrated permitting

approaches; and (3) exploring opportunities for applying lessons and aspects of the IPPC approach and methodology in the US. Chapter 8 of the report explores the following key findings in greater detail.

UK Integrated System Uses Single Standard-Setting Concept to Set Limits and Address Pollution Prevention and Sustainability

Fundamentally, the IPPC permitting system is a comprehensive multi-media, pollution-prevention approach to environmental protection that also promotes sustainable practices (e.g., consideration of water and raw material use and energy efficiency). Implementation of the IPPC system is based on a single standard-setting approach, BAT. In short, BAT is based on the most effective and advanced stage of techniques and their associated performance ranges. BAT is designed to achieve a high level of protection for the environment as a whole. In order to facilitate the determination of BAT at each facility, the UK relies on a variety of cross-cutting tools that support standard-setting across all environmental media. *In contrast to the UK system, the US approach relies on statutes that operate independently with relatively little comprehensive, national direction by overarching statutes. In most cases, pollution prevention and sustainability objectives, if considered at all, are approached through non-regulatory partnership strategies. However, in many cases, the performance of US technology-based standards is consistent with and falls within IPPC BAT performance ranges. On the other hand, in contrast to the UK, cross-cutting multi-media tools and methodologies are applied rarely in the US permitting process.*

Regulation of Whole-facility Footprint is Foundation of UK Permits

A single IPPC permit is used to address all aspects of a facility's environmental footprint, including conditions that prevent or reduce air, water, and land emissions; manage, recover, and dispose of waste; and address pollution prevention and sustainability considerations. *In contrast, the US relies on separate media-specific permits for air, water, and waste, which in some cases include conditions that address only certain portions of a regulated facility's operations. As such, several US permits may be needed for any one facility, each focusing on individual media and the impacts of specific pollutants. Few US permits, if any, include sustainability or pollution prevention factors as permit conditions.*

UK Permits Tailor Standards to Facility-Specific Conditions

Through the permit issuance process, a UK permit writer fits plant-specific conditions (facility characteristics and local conditions) with sector-wide BAT indicated in the BREF or UK technical guidance. For example, BAT-based numeric limits (known as Emission Limit Values or ELVs and derived from sector benchmarks) may be adjusted in a permit to reflect local and site-specific conditions. This includes both BAT-based limits adjusted to reflect environmental quality standards or local geographic conditions (e.g., depletion of local aquifer) *and* facility-specific characteristics and conditions (e.g., equipment and technology already in use at the facility). Using this approach, IPPC permitting is able to mesh local and facility-specific conditions with sector-wide considerations. In addition, existing UK facilities not operating to BAT indicated in guidance may be subject to improvement program conditions tailored to the individual facility that move the facility towards (but not necessarily always as far as) the indicated BAT. On the other hand, because of the facility-specific nature of the BAT

determination, some facilities will be able, and therefore required, to achieve or even surpass the BAT indicated in guidance for some aspects of facility operation. *In comparison, US technology-based standards are established through national regulations and apply broadly to sectors (with some accommodations within a sector, but not to the level of an individual facility). US regulators may make adjustments to national standards within a permit based on environmental quality considerations; but except under limited circumstances, US standards are not changed in a permit to take into account the circumstances of an individual facility, nor are facilities legally subject to permit requirements for performance beyond the national or state standards.*

UK Permits Require Ongoing Focus on Continual Improvement

An IPPC permit is a living document – both reflecting the current performance at a facility and driving continual improvement on the part of the operator. Permit conditions that include implementation of an environmental management system and scrutiny of material inputs require operators on an ongoing basis to seek opportunities for performance improvement. Moreover, regulators and industry alike have an ongoing responsibility to keep abreast of the latest developments and improvements in BAT. On a real-time basis this knowledge may be directly applied to permit terms. *In contrast, a US permit typically contains nationwide, sector-specific emission limitations that offer little regulatory incentive for improving performance beyond applicable limits. On a voluntary basis, US companies may participate in leadership programs designed to motivate continual improvement, beyond-compliance performance, and stewardship practices. In the US, rulemaking is often a necessary step for keeping standards aligned with new technologies.*

UK System Manages Environmental Permitting on a Sector Basis

Sectors play a significant role in the regulation of industrial emissions for both the EU and UK. Sectors are the basis for the delivery of integrated and multimedia standards for IPPC (through sector-based technical guidance on BAT). The UK also phased roll out of BAT standards on a sector basis (through the PPC regulations that required demonstration of BAT in permit applications within a specific window of time). On a strategic level, the UK manages IPPC permitting and compliance assessment through sector-based planning, priority-setting, indicators, and performance targets. *In a number of cases, the US also uses sectors in the delivery of regulatory requirements for media-specific statutes; however, except on very limited occasions, promulgation of media-specific standards is not coordinated across a sector. Using sectors as an overarching strategic management tool (e.g., for prioritizing, targeting, and measuring) is at best piecemeal in the US – more often than not driven by narrower federal (sometimes voluntary) program or state interests.*

UK Legal and Permitting Structure is Flexible and Fluid

The PPC legal authority in the UK is less prescriptive and detailed than corresponding legal authorities in the US (even the PPC regulations do not contain the complex detail of many US statutes). Detail on determining BAT conditions is contained in non-binding guidance documents, which allows the regulator to exercise additional technical discretion in setting permit conditions. *Such discretion is not generally provided to similar agencies in the US.* In part, the overarching legal framework in the UK results in a greater capacity to expeditiously

address new issues. *The US does not have a corresponding, all-inclusive environmental statute to address emerging challenges on a comprehensive, ongoing, and straightforward basis.*

New Sources, Existing Source Modifications, and Permit Changes are Treated Differently than in the US

For a new source in the UK, no IPPC permit or review is required until the source begins operation (i.e., the facility operator does not obtain a construction permit). As a practical matter, most new sources apply for their IPPC permit well before operation is scheduled to begin, and often even before construction begins, so that BAT requirements can be ascertained prior to committing resources to construction. *Construction permits are not required by the US water permitting program, but by contrast, the US has extensive pre-construction review for air emission sources, which means that permits must be obtained before construction begins.*

All permitted UK facilities must employ BAT. While new facilities will normally be expected to comply with, or go beyond BAT indicated in the BREF or UK technical guidance, existing facilities may be allowed to operate initially using techniques not at the indicated BAT. Where existing facility operations fall significantly short of the indicated BAT, an improvement program may be required. Despite this allowance for variation at particular existing installations, the presumption under IPPC is that all facilities, new and existing, are subject to BAT standards. *In the US, it is typical for separate federal standards to be set for new and existing facilities (where both types of facilities are regulated), with new facility standards being the more stringent and roughly on a level with IPPC BAT performance ranges. As in the UK, new facilities must meet standards upon startup; while existing sources will be given time to install controls to meet applicable standards. However, particularly in the air program, some existing facilities may be subject to little or no regulation, despite the fact that new facility counterparts are subject to a federal standard. In general, the US federal system does not require existing facility upgrades in areas of good air quality, unless an existing source makes a modification.*

Changes to IPPC permits may be initiated by the facility or the EA to reflect operational or process changes at the facility, changes in BAT, or changes in facility performance. Permit revisions can tighten or loosen permit obligations, but must continue to reflect BAT for the facility. Prior to making an operational or process change, an operator must notify the EA and assess the environmental effect of the proposed change before it is actualized. The EA (usually the area inspector) then determines whether a change requires a permit variation. *In the US, permit modifications are not generally initiated by the permitting authority to reflect changes in facility performance. In contrast to the UK system, the US air permitting system includes complex applicability provisions and thresholds to determine what permits are required before physical (construction) or operational modifications may occur.*

UK System Fosters High Expectations and Shared Responsibility by Operators and Regulators

Fundamentally, the IPPC system requires facility operators to assume responsibility for the entire footprint of a facility. The onus is on the operator (in the permit application) to propose and demonstrate BAT for all environmental impacts of facility operations (rather than leave it exclusively to the regulator to prescribe controls for specific sources and emissions). On an

ongoing basis, operators must also identify, and where feasible, implement performance improvements. UK integrated permits also include a requirement of implied BAT whereby facility operators are expected to prevent or reduce emissions from an activity, even if that activity is not explicitly covered by a permit condition. Cumulatively, these comprehensive requirements and expectations under the IPPC system are designed to promote a stewardship ethic among facility operators. At the same time, EA staff must be technically equipped to regulate all aspects of a facility covered by IPPC. On a facility-specific basis, EA permit writers both set performance targets and evaluate techniques used to achieve targets. Some of the time, this level of expertise results from prior experience in industry. *Generally, US facility operators have relatively limited obligations beyond the need to meet emission standards and do not have to determine and address sources left unregulated or residual environmental effects. In contrast to the UK, most attempts to influence stewardship behavior in the US stem from federal and/or state voluntary programs, company or industry initiatives, international business standards, or citizen group pressures – and are distinctly extra-regulatory. Additionally, broad, cross-media technical expertise is not typically required of US permit writers, where permits usually are media-specific and not generally subject to determination of emission limits on a facility-specific basis.*

UK Compliance and Enforcement Model Emphasizes Consultation and Underlying Behavior Changes

The UK approach to compliance and enforcement can be described as a collaborative negotiation. Beginning with the permit process, there is continual dialogue between the UK EA and a regulated facility. Maintained throughout the permit cycle, this partnership is supported by the IPPC system's reporting, monitoring, and inspection regime and the respective expectations and responsibilities of both the UK regulators and the regulated community. During inspections, EA inspectors and facility representatives may openly discuss operational issues. The facility receives written results at the end of an inspection and can expect prompt written notification of violations within days following the inspection. Once in the enforcement mode, cooperative consultation (buttressed by the significant threats of unilateral, permit variation and revocation, and ultimately criminal prosecution) continues to be the preferred method for addressing noncompliance. Currently, no administrative penalty authority exists in the UK for the EA. *In practice, US federal and state permitting authorities also engage in frequent dialogue with permittees during the permitting process. It is standard procedure for US inspectors to hold closing conferences with facility representatives; however, a formal notification of violation may take an extended period of time to arrive. For addressing issues of noncompliance, the US system usually relies on its civil enforcement authorities, including judicial and administrative penalty authority, as well as criminal sanctions where warranted.*

All IPPC permit terms and conditions are enforceable and include traditional numerical limits; equipment and work practice standards; and details on management system plans, pollution prevention programs, waste minimization programs, and energy efficiency programs. Each permit condition has accompanying requirements for testing, monitoring, recordkeeping, and reporting. In fact, the EA places more emphasis on “upstream” facility management, than on “downstream” limit violations. In this regard, the EA prefers to bring an enforcement action for underlying behavior, such as a failure to train employees adequately or to maintain and operate equipment properly, in order to prevent a more significant environmental breach and

consequence. *In comparison, because US permits seldom include requirements related to activities such as management systems and pollution prevention and resource use, US enforcement actions tend to focus on violations of numerical limits and other specific permit terms, rather than on the underlying behavior that might lead to a violation.*

UK Culture of Trust Shapes Public Expectations and Involvement

The degree of public involvement in the UK appears inextricably linked to its cultural and historical backdrop – that is, one of public trust in the government complemented by a strong cooperative relationship between regulators and regulated. Formally, the UK IPPC public participation procedures are generally analogous to those in the US. The EA keeps the public informed of permitting determinations by public registry and regular national reports. However despite the effort, environmental groups (one type of public entity) appear less likely to challenge national rulemakings, permit issuance or enforcement decisions than in the US. *US environmental groups frequently take legal action at the federal level to challenge the validity and substance of national rules and at the state level to challenge individual permits.*

Agency Organization and Management Differs from that in the US

In the UK, regulatory responsibilities are split between the political, rulemaking Government department, DEFRA, and the implementing agency, the EA. As the corporate body financially responsible for environmental permitting, the EA must offset permitting expenses with revenues – EP OPRA being the tool that allows the EA to do this. *In contrast, at the federal level in the US, political leadership and national rulemaking are functions of the US EPA whereas implementation and enforcement are shared between EPA and the states. The EPA is also not subject to the same revenues and expenses balance sheet pressures on a program-by-program basis as is the EA.*

UK System Linked to Broad Technological and Regulatory Developments and Trends

The EU and UK IPPC system is designed to track changing conditions. On the standard-setting front, the EU EC periodically updates BREFs in response to advances and changes to sector-level BAT. Once this EU process is complete, the UK will reflect these changes in domestic technical guidance on BAT. Ideally these changes will coincide with the EA periodic review of individual IPPC permits, which would then be modified to reflect updated BAT standards. *Similar requirements and expectations exist in the US for updating standards and adjusting permits to reflect such change; however, this is primarily a regulatory process which may occur over a longer time period.*

Additionally, in order to reduce burden on both business and government resources, the EU and the UK are engaged in carrying out a “Better Regulation Agenda” in an effort to modernize, rationalize, simplify and streamline government regulation. This has a significant influence on the design and functioning of UK environmental regulatory programs (including integrated permitting). *Similar regulatory reform initiatives have been launched in the past in the US and, although less clearly identifiable, may be present today.*

Next Steps

At this time, EPA is not recommending specific actions relative to the findings of the full report. Rather, we extend the work as a platform for encouraging further dialogue and possible expansion of the integrated permitting experience in the US. Specifically, EPA continues to invite interested stakeholders to develop opportunities for future research and for experimenting with UK IPPC concepts that may lead to improvements in the US permitting system.

Readers interested in learning more can visit the EPA website at www.epa.gov/permits/integrated.htm. In addition to the complete report and appendices, other documents discussing potential research, programmatic, and policy options for piloting integrated permitting approaches in the US will be available online. The report appendices housed online include a great deal of supplemental information, such as the history of US multimedia permitting efforts, further details on enforcement authorities and procedures in the UK, among other topics.