

NATIONAL CENTER FOR ENVIRONMENTAL INNOVATION

**INTEGRATED PERMITTING
INTERNATIONAL COLLABORATION EFFORT**

DRAFT EXECUTIVE SUMMARY

OCTOBER 11, 2007

Please note that this is a draft and is not intended as a final EPA document.



I. Introduction

Permitting industrial facilities is an essential tool for regulating environmental pollution in the United States and across the globe. In almost all countries, permitting programs were first designed to address specific environmental media or other specific environmental concerns. An increasing number of governments, most notably in the European Union (EU), have been transforming their industrial pollution permitting regimes to an integrated approach. At the invitation of the United Kingdom (UK) Environment Agency (EA),¹ the United States (US) Environmental Protection Agency (EPA) initiated a collaborative effort, the Integrated Permitting International Collaboration Effort (IP ICE) to investigate the integrated, cross-media environmental permitting system that is being developed and implemented in the EU and specifically in the UK.

A broad range of perspectives and opinions exist regarding the effectiveness and efficiency of environmental permitting of industrial facilities in the US. For more than two decades, there has been interest and attention in the US for improving environmental permitting through innovation, in part spurred by ideas and analyses from experts in academia and think tanks. A variety of State and EPA permitting initiatives have explored practical ways to encourage multi-media approaches, to foster continual environmental improvement through EMS and other means, and to focus attention on achieving better environmental outcomes and sustainability. While some of these efforts have shown significant promise, many also have faced considerable challenges.

In an effort to bring fresh perspectives and thinking to these challenges and potential opportunities, EPA along with State environmental agency representatives has been studying the integrated environmental permitting system in the EU, specifically focusing on the UK's experience in England and Wales. The initial findings from this effort are intriguing, and worthy of further discussion by a wider US audience.

The intent is to foster and inform a robust discussion about possible future paths for environmental permitting and innovation in the US. While it is premature to draw conclusions about the success of the evolving integrated permitting systems, reflection on the permitting approaches and processes in the UK and EU provide a useful mirror for illuminating key aspects of the US permitting system.

II. The Integrated Permitting International Collaboration Effort

The IP ICE is a result of a multi-year, multi-phase effort to understand and analyze the integrated permitting system currently being implemented in the UK. This effort has involved both a broad "network" of interested EPA and State environmental agency representatives and a core research team based in EPA's National Center for Environmental Innovation (NCEI). The integrated permitting network was formed early on to support the diffusion of information and findings from the collaborative effort. In addition to the research team and network, the UK's Environment Agency has been a full and dedicated partner in the effort.

¹ The EA is the environmental regulatory agency for England and Wales.

The research team consists of staff from EPA's national programs and regional offices with expertise in air, water, and waste permitting, international environmental affairs and environmental law as well as representatives from State permitting programs also participated on the research team. Members of the research team relied on available literature, detailed interviews, and site visits with the UK EA staff to analyze the UK's integrated permitting structure. The research team also conducted a comparative analysis of two sets of US and UK permits issued to facilities in the pulp and paper and specialty-batch chemical sectors in each country to better illustrate the comparison of these two permitting approaches. The results of this analysis are presented in this draft report.

The draft report provides an introduction to the UK's integrated permitting system and draws general comparisons between the UK and US systems. It contains a summary of the statutory, regulatory, and institutional structure for integrated permitting in the UK, and also compares permits issued in the UK with those issued under the regulatory structure governing similar facilities in the US. The later analysis focused on two sets of US and UK permits in the pulp and paper and specialty organic chemicals sectors. It is EPA's hope that this draft report and its findings provide a foundation for discussing potential future directions for experimentation and innovation in the US in light of the integrated permitting system and approaches used in the UK. It is also important to note that any comparison of the US and UK approaches, by itself, does not reflect a judgment on the merits of either system. Ideally, the analysis will help stimulate thinking about the future evolution of permitting in both countries.

III. What is Integrated Permitting?

The EU's and UK's integrated approach to permitting is more than just a consolidation or a "stapling together" of single media permits. Integrated permits address each aspect of a facility's operation that has an environmental impact, including areas not traditionally regulated, such as energy, water use and efficiency, raw material selection and use, noise, and vibration. Integrated permits also address pollution prevention, multi-media or cross-media effects and interactions, and those aspects of facility operation and management that affect long-term sustainability.

The UK integrated permitting regime was enacted over the course of 30 years through a series of legislation, the most significant of which paved the way for the EU's 1996 Integrated Pollution Prevention and Control Directive (IPPC). The purpose of the Directive is to "prevent emissions into air, water and soil wherever this is practicable, taking into account waste management, and where it is not, to minimize them in order to achieve a high level of protection for the environment as a whole." The Directive also contains the definitions for many key permitting terms, including pollution, emission, best available techniques (BAT), and installation, thus promoting an EU-wide integrated permitting institution using a common definition of these terms. The IPPC Directive applies to six main industrial sectors:

- Energy;
- Production and processing of metals;
- Minerals;
- Chemicals;
- Waste management; and

- Other (including pulp and paper production, textile treatment, tanning, food production, and the intensive rearing of poultry and pigs).

In order to translate the IPPC Directive into national law, the UK passed the Pollution Prevention and Control Act of 1999 (PPC). The law set into place the steps necessary to update the existing integrated permitting system, known as the IPC. The PPC Act builds on the existing UK IPC regime and provides the statutory framework for the issuance of integrated permits and gives a very broad scope of regulatory authority to the government. To support and implement the PPC regulations, the UK also relies on the IPPC Directive and other EU directives to define the permitting process and create timelines for implementation. The IPC and the PPC systems will co-exist until October 2007 when the PPC permitting system will be completely integrated into a single regulatory framework.

To facilitate the transition to IPPC permits the UK chose a phased, sector-based approach to implementing the IPPC Directive, in part to “spread the load” on both regulators and facility operators. The schedule began with the submission of permit applications for paper, pulp, and board manufacturing activities in February 2001, and ended with the waste disposal and intensive farming sector applications in January 2007. Facilities in each sector had a three month window in which to submit their permit applications, and by October 2007, the EA expects to have 3,500 facilities with PPC integrated permits.

IV. Key Attributes of Integrated Permits

IPPC permits are based on the application of a common standard, BAT, to control emissions to all three environmental media (air, water, and land). In addition, BAT is applied to all other aspects of facility operations having an environmental consequence such as raw material and energy use, waste generation, noise and odor, protection of soil and groundwater, management and accident prevention control. BAT is determined on a site-specific basis, taking into account EU and UK guidance, but also reflects geographic and local conditions such as technical characteristics of the facility, cost (not profitability) in relation to environmental benefit,² and facility capital investment cycles. Individual permit conditions conclusively define BAT for a facility. In summary, BAT is determined for each emission-generating activity and any other environment-related aspect of a facility’s operation, and is tailored (based on adequate justification by facility operators) to take into account local and site-specific conditions.

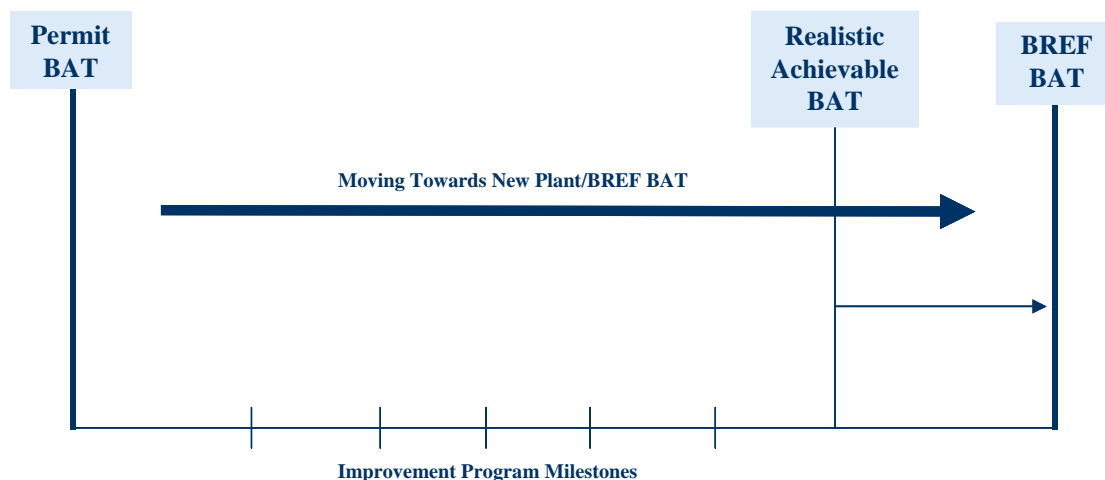
The IPPC Directive mandates that the European Commission (EC) organize an exchange of information between Member States and industry on BAT and publish the results. The product of this information exchange, largely a consensus driven negotiation, is the BAT Reference Document or BREF for each industrial sector regulated under IPPC. In essence BREFs outline BAT for new sources – what a new “greenfield” source in a particular sector would be expected to do in all aspects of its operations that impinge on the environment. In particular, the BREFs summarize available information on new source BAT to serve as a reference for permitting authorities across the EU as well as to address potential technological differences or imbalances

² This is not a rigorous quantitative cost/benefit analysis as we would apply it in the US in a Regulatory Impact Analysis, for instance.

among Member States. The content of the BREF provides the basis for input in determining BAT at the national level and contains methods, processes, and techniques and as appropriate a corresponding range of environmental performance benchmarks to be taken into account when making BAT determinations for an individual facility.

Since the BREF defines BAT for new, “greenfield” facilities, BAT determined in PPC permits for existing facilities (permit BAT) may or may not rise to the level of BREF BAT. In instances where there is a significant difference between “permit BAT” and BAT indicated in the BREF, existing facilities are subject to an improvement program (containing discreet milestones with completion dates) designed to move the operator and facility towards BREF BAT over a several (typically three) year period. PPC permitting in the UK explicitly recognizes that “new techniques cannot be brought into effect overnight” and that consideration be given to the length of time needed to introduce BREF BAT or the UK equivalent set out in UK Sector Technical Guidance Notes. Indeed, an existing facility while subject to the new source BAT standard may not, for a variety of reasons, be expected to reach BREF BAT performance over the timeframe of the improvement program. In these instances an operator stops short of BREF BAT and ends up at what is realistic or achievable at that particular facility. Figure 1 below illustrates the dynamics of BAT implementation in the UK.

Figure 1: UK BAT Implementation



Just how quickly an individual facility is required to move towards BREF BAT is decided as the EA moves through the application or permit determination process. In addition to establishing BAT at the facility level (reflecting EU and UK guidance as well as local conditions), EA permit writers can set a more or less aggressive schedule for achieving or progressing towards BREF BAT. As the first generation of PPC permits undergo their first periodic review (in late 2007 and beyond) and EU BREFs are updated to incorporate the latest technological advances, additional improvement program milestones may be set to meet either current or future BREF BAT.

IPPC permits also contain a number of provisions not found in most US media-specific permits. Many of the elements addressed in the UK integrated permit reflect the IPPC focus on pollution prevention, resource use, and non-substance emissions. IPPC permits are also required to

contain conditions that govern controls for operation and management of a facility, often in the form of an environmental management system (EMS). Typical permit contents include:

- Management techniques
- 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

V. Integrated Permitting Organizational Roles, Process and Tools

Like the US, the EU and its Member States interact in the context of a federal-state relationship. In Europe, the European Commission (EC) and the associated Environment Directorate-General and the European IPPC Bureau constitute the “federal” or central authorities, and the individual EU Member States are the rough equivalent of US States. Upwards of 80% of new regulatory mandates for environmental protection in the UK come from European legislation.

At the EU level, the role of the EC is to define and initiate new legislation that has been agreed to by the EU Member States that take the form of environmental directives such as IPPC. Member States are charged with translating the EU mandates into domestic law. In the UK, the work of implementing the IPPC Directive falls to the Department of Environment, Food, and Rural Affairs (DEFRA) and the DEFRA-sponsored EA. DEFRA is the environmental legislative and policy-making body while the EA, under some direction from DEFRA, is the agency with the technical and administrative expertise that is responsible for issuing permits to facilities covered by the IPPC Directive in England and Wales. While the EA is responsible for issuing integrated permits, the agency is also required to consult with local authorities.

Historically, the relationship between the regulating authorities and the regulated community in the UK has been characterized as collegial and consensual. For example, while the PPC regulations do contain formal enforcement mechanisms, regulators use such mechanisms rarely and rely instead on a culture of cooperation. This cooperative approach is characterized by the development of a continuing relationship between the EA, as the enforcement agency, and individual regulated facilities through continuous dialogue. The EA views its primary objective as being to ensure the safety and protection of environmental and public health rather than to punish. Additionally, since an integrated permit is inherently flexible, variations and adjustments can be made easily. This also gives the EA a large amount of discretion and provides leverage during negotiation, allowing, for instance, the threat of more stringent conditions if the facility does not comply with current levels. Furthermore, the EA strives to find a balanced, proportionate response that will drive environmental improvements, reward good

performance, and still provide the reassurance that tough action will be taken on those who fail to meet acceptable standards.

To obtain a permit, facility operators in the UK must demonstrate in a permit application that they have systematically developed proposals to apply BAT to all activities with environmental consequences and meet certain requirements such as complying with EU-established Environmental Quality Standards and emission limits. Final permit terms are fashioned by the EA subsequent to further information exchange if necessary, review and comment by other agencies or statutory consultees, and the public, and negotiations with the facility operator. A permit application is typically determined within six months of its submission.³

The public is assured access to information throughout the application and permit process through public registers maintained by the EA. Individual permit applications, permits, and compliance information are deposited for public review and/or comment.

As part of the permit application process, operators are required to complete the Environmental Protection Operator and Pollution Risk Appraisal (EP OPRA) which provides *approximate* “risk” information (or an approximate measure of the potential to cause harm)⁴ that is used to help plan and manage the EA’s internal workload and resources, inspection and monitoring activities, target efforts toward specific processes and operators according to their “risk” levels, and set annual fees for operating facilities.

OPRA does not assess “risk” directly, but consists of a set of indicators of the potential for environmental harm based on a series of input factors that determine “risk” from a process, such as management systems, substances handled, emission rates, pollution control systems, and location. The tool uses five attributes to make its “risk” determination: (1-3) reflect the environmental hazard of a facility, (4) measures operator performance, and (5) reflects the compliance rating of a facility.

The determination of BAT for an individual facility in the UK is aided by a tool referred to as Horizontal Guidance or H1. The EA, in collaboration with Scottish and Northern Irish environmental agencies, developed this environmental assessment and appraisal tool, which provides sources and regulators with a scoping and options analysis of the environmental impacts and costs associated with available environmental protection techniques. The H1 tool generates a comprehensive picture of a facility’s environmental footprint. Operators are not required to use H1, but the EA will use it to validate information submitted in the permit application.

The UK and EU integrated permitting system is completing the first stage of a longer journey in October 2007. Given that the integrated permitting system is designed to improve performance and outcomes over time, reviews of the IPPC Directive and updates to the BREFs will highlight

³ In this case “determination” refers to the decision made by the EA on the permit conditions, not whether or not the permit application is complete.

⁴ OPRA does not assess risk in the way often thought of in the US. OPRA does not include a measure or calculation of risk using human health endpoints.

changes that are needed to ensure continued environmental improvement among industrial facilities. To accommodate these changes, the UK EA will periodically review integrated permits on a sector-basis, making adjustments to individual permits to ensure continued progress over time. The integrated permitting system also provides a framework for incorporating new EU Directives that may target specific aspects of industrial sector environmental behavior and performance.

VI. Observations

The IP ICE has fostered a greater understanding of the UK EA's integrated permitting system from both a design perspective and in practice. IP ICE team members have noted a number of instances where the UK integrated system differs significantly from the environmental permitting system in the US. Some parallels have been noted as well. These observations have been grouped into key areas, which are summarized below and explored in greater detail in the full report.

We believe that the observations discussed below will be of interest to US permit practitioners and regulatory and policy experts. They are intended to stimulate dialogue with our stakeholders that will: (1) foster a better understanding and assessment of the potential benefits and drawbacks of an integrated system in the context of the US permitting regime; (2) spur additional research and analysis on integrated permitting approaches; and (3) explore opportunities for applying lessons and aspects of the IPPC approach and methodology in the US. It is important to note that the UK system was developed and operates in a social and historical context very different from that in the US. Therefore, it is unlikely that the UK model would be replicated in the US wholesale regardless of its effectiveness. Therefore, the intent of this report is not necessarily to form an overall judgment on the UK approach, but to learn the approach's strengths and weaknesses and identify lessons that could be applied to improve (not immediately transform) the permitting system in the US.

These observations relate primarily to different comparative aspects of the permitting systems and processes, and not to the differences in environmental, public engagement or other potential outcomes that these different permitting systems are able to deliver. More research and analysis is needed to explore these issues. The permit-specific review and analysis conducted by the IP ICE of a pair of UK and US facilities in the pulp and paper and specialty organic chemicals sectors were unable to demonstrate whether the IPPC produced any greater reductions in discharges to the three mainstream media (air, water, waste). The actual relative stringency (as reflected in numeric limits) of the two sets of permits could not be determined, mainly due to differences between the US and UK facilities, differences in the ways pollution limits are expressed, and the dynamic nature of requirements applicable to the facilities under the two permitting regimes (i.e., both sets of facilities would be subject to future requirements that they did not yet meet).

Summary

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Integrated System Targets Pollution Prevention and Sustainability and Relies on Single Permit to Address Entire Facility Footprint

1. The permitting system in the UK, as well as the governing EU IPPC Directive, takes a **comprehensive and pollution prevention-oriented approach** to environmental protection, using end-of-pipe controls where management controls and pollution prevention are not sufficient or practicable. It seeks to achieve a "high level of protection for the environment as a whole," by looking broadly across a facility's entire footprint at all environmental impacts. In contrast to the UK system, US environmental permitting is directed by media-specific environmental statutes and looks primarily at separate impacts of specific pollutants on individual media. Each US statute operates independently, with relatively little comprehensive, national direction by overarching statutes.
2. Under IPPC and PPC a **single permit addresses all aspects of a facility's environmental footprint**. In contrast, the US relies on individual media-specific permits for air, water, and waste and is confined to certain pre-defined aspects of a facility's operations.
3. Facility operators in the UK, as part of BAT application, must address, implement, and report on **pollution prevention opportunities and sustainable outcomes**, such as raw material substitution, water use reductions, and energy efficiency improvements across the entire facility. Such considerations are generally a voluntary overlay in the US where the emphasis is on meeting single media performance standards.

Ongoing Performance Improvements

4. An IPPC permit appears to be a very powerful tool. It is a living, breathing, document **that reflects the current performance of a facility and is a forcing mechanism for continuous improvement, moving a facility's performance over time to as close as possible to that of an entirely new facility.** Importantly, numerical limits must reflect the actual facility performance and not simply the BREF benchmark values. In contrast, a US permit typically contains nationwide, sector-specific emission limitations. Continuous compliance with such limitations is the objective. Therefore, except on a company's own initiative and desire to be competitive, there generally is no requirement or emphasis on continuing to improve performance beyond applicable emission limits.
5. Both EU and UK regulators have **an ongoing responsibility to keep BAT guidance documents up to date and consistent with the latest developments and improvements to BAT techniques and technologies.** Similar expectations are mandated by US statutes and are carried out through the national rulemaking process (although often in arrear of statutory deadlines). National rulemaking in the US typically entails significant transaction costs. Additional inquiry and research may determine whether or not the IPPC updating process is any less cumbersome or timelier than the US process.

Permits Tailor National Standards to Facility-Specific Conditions

6. **UK standards or BAT** for all environmental aspects of a facility is **determined through the permit issuance process.** Although certain presumptions of what constitutes BAT are set forth in the EU BREFs and UK Technical Guidance, final BAT determinations for an existing individual facility can vary from these presumptions based on facility characteristics and local conditions. In essence, the UK permit writer considers and reconciles or “fits” plant-specific conditions with presumed BAT. By contrast US environmental standards are established through national regulations applying broadly to sectors, with some accommodation of sizes and types of facilities within a sector – but not down to the level of an individual facility. Such standards cannot be changed through permitting to take into account the circumstances of an individual facility.
7. Existing facilities not operating at BREF or new source BAT are subject to **legally-binding improvement program conditions** that move the facility towards BREF or new plant BAT standards. Improvement program conditions in the IPPC permit do not have a direct analogue in the US permitting system but are roughly equivalent to regulatory compliance dates (set several years out from promulgation of new standards).
8. Individual facility operators in the UK **may not meet the “national” BAT indicated in the BREF (i.e., new source BAT) over the timeframe of the permit's improvement program.** Given certain conditions at a facility (e.g., structure of the physical plant), it simply may not be reasonable or feasible for an operator to install BREF BAT within the time limits of an improvement program. The pace at which the operator is required to move to BREF or new plant BAT takes into account such factors as facility-specific capital investment plans and cycles. Absent individually applied for and negotiated regulatory or

permit flexibility (available on a very limited basis), requirements for compliance with US national standards are fixed and absolute.

9. On the other hand, because of the facility-specific nature of the BAT determination, **some facilities will be able to, and therefore be required to achieve or even surpass, BREF BAT for some aspects of facility operation.** By contrast, US facilities are not legally subject to federal requirements for performance beyond the national standard.⁵
10. **Both the IPPC and US systems require facilities to further reduce emissions and discharges in the event that such emissions/discharges would have unacceptable environmental impacts,** such as causing or contributing to a violation of an ambient air quality standard.
11. **Individual sector compliance deadlines for BAT are not mandated** under the IPPC Directive or the PPC Act; however, facilities must be in compliance with permit terms once the permit is issued.⁶ Sector-specific permit application deadlines are set in PPC regulations, but subsequent application determination (i.e., permit issuance) schedules are not legally binding (UK guidance does, however, state a four-month target for determination of a duly-made application⁷). As a result compliance deadlines will vary based on individual facility circumstances. Moreover, each permit will contain additional “deadlines” associated with improvement program conditions. Generally, all improvement program activities will have to be completed within a few years of permit issuance (many with much shorter time frames). For the most part, compliance with US regulatory standards carries pre-determined and exact deadlines.

Existing Source vs. New Source Permitting

12. **Although regulation of air/water pollutant emissions from new facilities is similar under the two permitting systems, under certain circumstances, existing facilities may be treated somewhat differently.** In the UK and under IPPC, existing and new facilities must employ BAT, which is based on the best option for protecting the environment as described in the BREFs and as further refined into national guidance documents in each Member State. New facilities must comply with BAT immediately upon beginning operation. However, as indicated in UK Sector Guidance Notes:

“For an existing installation, it may not be reasonable to expect compliance with indicative BAT standards immediately if the cost of doing so is disproportionate to the environmental benefit to be achieved. In such circumstances, operating techniques that are not at the relevant indicative BAT standard may be acceptable, provided that they represent what is considered BAT for that installation⁸ and otherwise comply with the requirements of the Regulations.”

⁵ Individual States do have the discretion to impose requirements more stringent than US Federal standards.

⁶ All sectors must have installed BAT by October 30, 2007.

⁷ In practice this timeframe is closer to six months.

⁸ “What is considered BAT for that installation” can be described as a “technique” that does not quite attain the level of the “indicative BAT standard” due to circumstances at the existing installation which cause the cost of meeting indicative BAT to be disproportionately high.

Nonetheless,

“...where there is a significant difference between relevant indicative BAT and BAT for the installation, the Permit may require further improvements on a reasonable short timescale” – i.e., through an Improvement Program.

Despite this allowance for some variation at particular existing installations, the presumption under IPPC is that all facilities, new and existing, are subject to the high level expectations of BAT.

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. 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. For example, under the Clean Air Act’s (CAA) program for “criteria” air pollutants, States are tasked with implementing programs to assure compliance with criteria pollutant ambient air quality standards. States with relatively clean air may not need to regulate existing facilities, or may not regulate them rigorously, in order to meet these ambient standards. **Therefore, while UK and US standards for new facilities appear roughly comparable, standards for existing facilities are more stringent overall in the UK, since all UK existing facilities subject to IPPC must meet BAT requirements.**

Higher Expectations and Responsibility Shared by Operators and Regulators Alike

13. Fundamentally, the IPPC system **requires facility operators to be the best they can be in all aspects of their operations**. The burden is on the operator to manage the entire footprint of a facility (rather than exclusively on the regulator to prescribe what sources and emissions must be controlled). This includes preventing and minimizing environmental discharges; properly managing, maintaining, and operating their facility; minimizing energy and raw material usage; and minimizing waste (reduce, reuse, recycle, and dispose of properly).

The US system requires facilities to comply with emission limits for air pollutants, discharge limits for water pollutants, and to properly handle, store, and transport waste. There is no legal obligation to do better than straight compliance, even if a facility is capable of doing better. However, for various business (or other) reasons, some US facilities engage in footprint reduction activities beyond traditional compliance with air, water, or waste regulations.

14. Integrated permits also include the requirement of *implied BAT* whereby **facility operators are expected to prevent or reduce emissions not explicitly covered by a permit condition**. 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.

15. Cumulatively, the comprehensive requirements and expectations under the IPPC system (referenced above) **promote a stewardship ethic** among facility operators. In contrast most attempts to influence stewardship behavior in the US stem from federal and/or state voluntary programs, company or industry association initiatives, international business standards, or citizen group pressures – and are distinctly extra-regulatory.⁹
16. Under the EA IPPC system, **the EA is actively involved in both the “what” and the “how” – setting the desired environmental outcomes as well as helping to ensure the desired behaviors.** Under the US system, the governmental agencies establish the desired environmental outcomes but then take a “hands off” approach to how facilities actually comply with their environmental obligations.
17. EU/UK **permit writers must be equipped to deal with all environmental effects** addressed under IPPC and also must be able to understand sufficiently the technical aspects of a facility/sector that bear on BAT determinations. UK regulators are also expected to stay abreast of new developments in BAT. This level of broad expertise – often a result of prior experience in industry – is not typically required of US permit writers, where permits usually are media-specific and not subject to “determination” of emission limits (i.e., performance standards are established nationally, are not subject to change, and only need to be properly identified in the permit).

Legal and Permit Structure is Flexible and Fluid

18. The UK PPC **legal authority is less prescriptive and detailed** than corresponding legal authorities in the US. That is, the PPC Act incorporates by reference the IPPC Directive and other national pollution authorities, not specifying detailed requirements as would typically be seen in US statutes. Moreover, the PPC regulations do not even contain the sort of complex detail that is found, for instance, in the US CAA. While not a part of UK legal authority, sector-specific detail on BAT is contained in non-binding guidance – the BREFs and UK Technical Guidance developed by the EA.¹⁰ The result is additional technical discretion for the EA – discretion not provided similar agencies in the US.
19. **The UK PPC legal framework has a greater capacity for incorporation of new requirements.** Since enacted (and in the face of innate industry wariness), the PPC framework has successfully absorbed and implemented ten new pieces of EU legislation.¹¹ This trend is continuing with plans to promulgate the EP regulations in April 2008 that will supersede PPC. By contrast, the US has no overarching environmental statute that can be used to frame and deliver new requirements – thus not providing a means to address new knowledge and environmental priorities.

⁹ See, for instance: EPA. 2005. *Everyday Choices: Opportunities for Environmental Stewardship*, <http://www.epa.gov/innovation/stewardship/index.htm>.

¹⁰ For legal purposes the guidance is “non-binding,” but in practice the technical guidance sets up BAT presumptions and the facility operator must justify deviations from that.

¹¹ As referenced and described in Chapters 3 and 4, Tim James at the UK EA has suggested that having the PPC as a credible delivery tool aids in calming industry angst over additional EU environmental requirements as they multiply.

20. In permit applications under IPPC, facility operators must propose BAT for the various site activities and propose improvement plans for complying with “new plant” BAT, if not already met. Where such proposals ultimately are accepted by the permitting authority, the final permit may reference pertinent sections of the permit application rather than develop separately composed requirements that reflect BAT. Thus, many of the **detailed permit conditions can appear in the application and not in the permit per se**. In the US, permit documents and requirements are generally self-contained with the exception of requirements incorporated by reference, such as reference test methods and start-up, shutdown and malfunction plans (under CAA Section 112).
21. Seemingly, **IPPC permits are relatively brief documents**, especially when compared to the combined length of US air, water and waste permit documents. However, in some instances the brevity of the permit document may belie the fact that significant portions of the application are incorporated by reference, which effectively lengthens the permit (substantially).

Operating Permits Only

22. For a new “greenfield” source (i.e., a “new build”), an IPPC permit is not required until the source begins operation (like US National Pollutant Discharge Elimination permits). **There is no permit or review required prior to beginning construction**. As a practical matter, most new sources apply for their IPPC permit well before operation is scheduled to begin, and often well before construction actually begins. As a legal matter, an IPPC permit for a new “greenfield” source cannot contain an improvement plan since it must meet new source BAT from the outset. By contrast, the US has an extensive pre-construction permit program, particularly for air emission sources.

A Unified and Comprehensive Permitting “System”

23. The **concept of BAT applies across all environmental standard-setting**. As a result a set of cross-cutting tools (e.g., OPRA, H1 and other horizontal guidance) have been developed in the UK to facilitate the development and determination of BAT in permit applications for all IPPC facilities. In contrast, US media-specific environmental programs and their corresponding statutes each have a distinct basis and definition for media- and program-specific standards. In the US cross-cutting and multi-media tools and methodologies are rare.

Environmental Agencies and Interactions Between Regulator-Regulated Differ

24. Regulatory responsibilities are split between the political, rulemaking Government department – DEFRA – and the “implementing” agency – the EA.¹² The **EA as the implementing agency is governed by a corporate structure and is thus subject to “corporate” pressures to balance the books**.¹³ In large measure OPRA, which the EA uses on an ongoing basis to establish facility-specific fees and to determine some workload elements such as the frequency of a facility’s inspections and audits, is an indispensable

¹² There is a fair amount of interchange between the DEFRA and the EA.

¹³ The EA is required by DEFRA to recover the costs of main regulatory services from the companies regulated.

resource management tool for the EA in its drive to rationalize use of agency resources. In contrast, on a programmatic basis, US EPA and, to a lesser extent US States, are not subject to these corporate balance sheet pressures.

25. **The success of the IPPC permitting system relies on effective and relatively robust relationships** – in particular the relationship between the facility and the local area inspector. The area inspector plays many roles – inspector, compliance assistance provider, auditor, consultant, enforcement officer, and communicator. The ability to conduct an inspection one day and present the source with a written warning (equivalent to our notice of violation), and then discuss a potential plant modification and what will be needed in an application to vary a permit the next day, depends upon a relationship built on mutual respect and trust. This relationship appears to be the “grease” that keeps the overall IPPC system (application, issuance, compliance, enforcement, continuous improvement) running smoothly. In contrast, US inspectors generally do not play this varied a set of roles or develop as robust a relationship with facility managers.

Monitoring, Recordkeeping and Reporting

26. It is the expectation of the EA **that each and every obligation in an IPPC permit will include adequate testing, monitoring, and recordkeeping, and certain information will be reported quarterly and/or annually to the EA.** This includes all “hard” numerical emission limits, as well as “soft” obligations such as elements of the environmental management system, repair and maintenance obligations, pollution prevention efforts, improvement plan conditions, energy and raw material efficiency efforts, etc. The goal is that all permit obligations are actually enforceable as a practical matter and that the data and information necessary to assess compliance is collected and retained by the facility and is available to the EA. In this respect UK integrated permits are identical to US facility permits.

Facility Inspections and Audits

27. **The IPPC system appears to involve more frequent and more flexible inspections than the US system.** Under the IPPC system, there are three different types of plant visits – inspections, audits, and monitoring assessments – each with its own purpose and scope. The frequency and coverage of these plant visits are directed by several factors – the sector plan, facilities’ OPRA scores, and facility-specific issues such as compliance issues, improvement plan conditions, and environmental concerns. Depending on these factors, a poorly performing facility could have four inspections and two audits per year while a well performing facility could have one inspection per year and a full audit every few years. Monitoring assessments are performed by the EA to evaluate the quality of air monitoring systems, and systems that receive low scores may have EA-performed source testing and EA-installed monitoring equipment to independently verify testing results and monitoring data (at the facility’s expense).

Enforcement/Compliance Approaches

28. From the US perspective, **the UK enforcement approach can be described as a “collaborative” negotiated approach, without the benefit of a formal civil component.**

Permit issuance, determination, and compliance are accomplished via a “continuous dialogue” between the UK EA and the regulated facility – with an emphasis on making things right (i.e., determining the cause of and the remedy for a problem), rather than punishing, when operator noncompliance is discovered. That said it is particularly interesting to note that the UK government is currently reviewing the implications of adopting administrative penalties – more akin to the civil enforcement practices of the US.¹⁴ The current UK collaborative enforcement approach appears to get its “teeth” from the unilateral, regulatory power of permit variation and revocation – and the ultimate threat of criminal prosecution (without a requirement of mens rea or criminal intent, as we have here in the US). In practice, if one is to consider together the practices at both the US federal and state levels, similar cooperative (pre-litigation) techniques (dialogue between the regulator and regulated) are probably employed.

29. The UK integrated permitting system **requires prompt reporting of each transgression of a permit condition and that these reports be placed in the public register.** Inspectors provide the facility with the results of the inspection in writing, including the identification of any violations found during the inspection or audit, at the end of the inspection. Written enforcement notices are usually sent to the facility within three days of the inspection and such notices are then placed in the public register. While the EA does not currently have administrative penalty authority, it can prosecute violators and can also suspend a permit (or portions thereof) or revoke a permit entirely if violations are not corrected. Enforcement of PPC permits appears to be quicker, more transparent, and more open to the public than US enforcement. The US system also relies on a relatively limited number of punitive formal enforcement actions.
30. All of the terms and conditions of the PPC permit are enforceable as a legal and practical matter. **While numerical limits in PPC permits are accompanied by many non-numerical conditions that dictate behavior, the EA has little problem enforcing any of the conditions. In fact, the EA prefers to bring enforcement action for the underlying behavior** (action or lack of action) that leads to exceedences of numerical limits (e.g., failure to train employees properly, failure to adequately maintain equipment), since correcting the behavior is the change that is needed to ensure continuous compliance with numerical limits. By contrast US permits do not address underlying behavior and so enforcement actions focus on violations of numeric limits, monitoring, reporting and recordkeeping and other more prescriptive permit terms.

Plant Modifications and Permit Changes (Variations)

31. Generally, an operator at an IPPC permitted facility must notify the EA of any proposed change in operation before it is put in effect, following an assessment of the change’s effects on the environment. However, changes completely within the scope of the original permit application may be made without notice to the EA. Changes only broadly within the scope of the original application require notification to the EA and approval, before the change may be made (although construction may begin without prior approval). Changes outside the

¹⁴ The Regulatory Enforcement and Sanctions draft Bill is slated for consideration by the UK Parliament in the Fall of 2007. For more information see http://bre.berr.gov.uk/regulation/enforcement_sanctions_bill/index.asp.

scope of the original permit application require an application for permit variation and subsequent change to the permit before the change may be implemented (although, again, the operator may begin construction prior to approval, but is well advised to consult with the EA in advance of changes to the physical plant). **The determination of whether a change requires a permit variation is made by the EA, usually by the area inspector**, so frequent and candid communication between the facility operator and the inspector regarding changes at the facility is critical to maintaining compliance with the permit and ensuring that permit variations are completed by the time a physical or operational change is ready to begin operation.

In the US, physical and operational changes at an existing facility are addressed by both pre-construction permits and/or operating permits for the various media programs. In contrast to the UK, construction may not begin on many changes until pre-construction permits are obtained. In addition, some changes may not be allowed to begin operation until operating permits are revised. Also in contrast to the UK system, the US permitting system includes complex applicability provisions and thresholds to determine what permits are required before construction or operation may occur.

32. **Permits can be changed at the request of either the facility or the EA to reflect 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. In the US, permit modifications are not generally initiated by the permitting authority to reflect changes in facility performance.

Public Involvement, Expectations and Participation

33. **The UK EA explicitly commits to keeping the public informed of its decisions regarding the integrated permitting process.** Specifically, the EA is required to keep a public registry, easily accessible, that covers a multitude of matters – including permit application, issuance, variation, revocation, enforcement, and appeals. In response to documents posted in the registry, the public can submit comment to the EA. In addition, the EA publishes an annual report that assesses operator performance. Using the data gathered in EP OPRA (see Chapter 4), this report identifies and ranks by name companies with the highest court fines and those companies considered repeat offenders. **Despite this potential ability to engage, it appears that in the UK, environmental groups are not as likely as in the US to directly challenge or intervene in permit or enforcement decisions.**
34. **UK nongovernmental environmental organizations do not generally react and take action – legal or otherwise – in response to national rulemaking.** For example, UK Government representatives (DEFRA) reported little success in generating interest and response to UK IPPC legislation and regulation. In contrast, US environmental groups frequently take legal action at the federal level to challenge the validity and substance of national rulemakings.

Permit Comparisons

35. The IPPC permit clearly addresses a more comprehensive set of environmental aspects and impacts compared to those addressed under the US permitting system. However, from the permit-specific review and analysis of the four facilities subject to this study, we were **unable to tell whether IPPC produces any greater reductions in discharges to the three mainstream media** (air, water, waste).
36. **Actual relative stringency (as reflected in numeric limits) of the two permits could not be determined**, mainly due to differences between the paired US/UK facilities, differences in the ways pollution limits are expressed, and the dynamic nature of requirements applicable to the compared facilities (i.e., both facilities would be subject to future requirements that they did not yet meet).¹⁵
37. The BREF document essentially represents new source BAT (Best Available Techniques) – what a new greenfield source in that sector would be expected to do in all aspects of its operation. Because the BREF process is one of consensus, **the BREF BAT guidance does not represent the absolute best that could be achieved by a new source (e.g. limits required by Lowest Achievable Emission Rate standards in the US air program) but rather considers EU economics and practices in individual Member States, so it is somewhat less than the absolute best (closer to Best Available Control Technology standards in the US air program).**

Continuing Evolution and Context

38. **The EC is charged with the ongoing responsibility to update BREFs in response to advances and changes to sector-level BAT.** The UK in turn reflects these changes in its domestic technical guidance on BAT. Ideally these changes to EU and national guidance will coincide with the EA's review of individual IPPC permits, which would then be modified to reflect changes in (new source) BAT. Similar requirements and expectations exist in the US for updating standards and adjusting permits to reflect changes in environmental conditions (attainment, non-attainment) and facility performance; however, this is primarily a regulatory process in the US and so may occur over a longer time period.
39. The integrated permitting system across the EU and in the UK operates in a regulatory context not too dissimilar to that in the US – namely in the midst of pressures to reduce demands on government and business resources without compromise to environmental results. **The EU and UK Better Regulation Agenda – an effort to modernize, rationalize, simplify and streamline government regulation – is a significant driver for much of the current effort to update UK environmental regulatory programs (including integrated permitting).** The Environmental Permitting Regulations slated for April 2008 (which will supersede and replace the IPPC PPC regulations) are designed with all the aforementioned goals in mind. Similar regulatory reform initiatives and pressures have been launched in the

¹⁵ EPA did attempt to achieve as close a match as possible in selecting the two facilities for this study. Choice of a pulp and paper facility located in England or Wales was limited as there are very few mills that still have pulping operations in these parts of the UK. Because pulping operations are a main focus of regulation in the US, this was a key selection criterion for this study.

past in the US and, although less clearly identifiable, are present today.¹⁶ In some instances the Better Regulation Agenda has been codified in UK law and regulations, something that occurs with less frequency in the US.

40. While broader in scope than regulatory reform tied to the Better Regulation Agenda, **several proposals to streamline, simplify, and make IPPC consistent with other EU Directives have surfaced in the EC's multi-year review of the IPPC Directive.**¹⁷ Additional proposals to re-evaluate BAT-based permitting (does Article 9(4) of the Directive provide too much flexibility?) and the role of BREFs (should they be made binding?) are also contained in IPPC review documents. While this process could take upwards of four more years to complete, there is a dynamic aspect to the EU legislative process that is currently not in play in the US (the IPPC review process is roughly akin to steps needed to reauthorize a major environmental statute in the US).

Next Steps

It is EPA's hope that the background information and observations presented above serve as a useful basis for understanding the general provisions of the EU and UK integrated permitting systems. It is EPA's further hope that this work provides a foundation for identifying areas fruitful for experimentation and innovation, and that those experiments and innovations ultimately lead to improvements in the US permitting system. Progress towards the next phase of experimentation with new approaches and tools observed in the UK very much depends on the participation of those who spend their professional lives concerned with and engaged in the daily business of permitting in the US. Recognizing this, over the next several months, EPA intends to invite interested stakeholders to participate in an ongoing dialogue about what opportunities exist to apply lessons from the UK integrated permitting experience in the US.

¹⁶ The US *National Partnership for Reinventing Government* launched in March 1993 bears a close resemblance to the UK *Better Regulation Agenda*.

¹⁷ A new draft IPPC Directive is due for release by the end of 2007. Enactment of a new Directive may take several more years.