Integrated pollution prevention & control (IPPC)

Capability statement

Entec

Entec is one of the UK's largest environmental and engineering consultancies. Our technical and business skills are dedicated to delivering strategic, technical and engineering solutions which bring commercial benefit to customers at home and overseas. This know-how is based on over 50 years' consulting experience in the public and private sectors.

Certificate No. EMS 69090 Certificate No. FS13881

Entec operates a Quality Management System in accordance with the latest requirements of the international standard BS EN ISO 9001 and an Environmental Management System compliant with BS EN ISO 14001. Both are audited by BSI Management Systems.

Integrated pollution prevention & control

The European IPPC Directive is implemented across England and Wales (and by similar systems in Scotland, Northern Ireland and the offshore oil and gas industries) by the Pollution Prevention & Control (PPC) regulations. For the purpose of this document, references will be made to PPC unless referring to the European IPPC Directive. However in the UK context, the terms are interchangeable.

For certain industrial activities, the business case starts from a need to comply with legislation. However, good environmental and safety management should be linked to improved business performance. The permitting and ongoing operational compliance cost should be pitched against a clear understanding and delivery of business benefits, both hard and soft.

So at one level the 'licence to operate' is a precursor to the organisation creating value, generating wealth and providing employment opportunities. But to square the circle of best business practice, companies need to understand and then manage the impacts (good and bad) they have on the environment and communities. PPC compliance helps deliver these business objectives.

Benefits are manifold and can range from cost avoidance, such as fines and unplanned costs associated with pollution incidents, two improved productivity and operational cost reduction through resource efficiency and waste minimisation.

Clearly these benefits can be delivered outside of PPC but done well, PPC can focus the thinking and act as a stimulus for improved business performance.

Benefits of PPC

- Reduction in unplanned, compliance related expenditure;
- Access to new customers and defence of existing supply chains;
- Avoids reputational damage;
- Reduction in waste disposal costs and security of disposal routes;
- Increased process yield;
- Enables operations to continue;
- Lower cost of energy use;
- Reduction in time spent dealing with nuisance complaints.

How to get started

Experience shows it is preferable to define the scope in terms of the 'technical unit' and degree of detail required in the application through consultation with the regulator. This is best done at the earliest available opportunity to define the required content of the application to ensure there are no misunderstandings of what details are required. This is necessary as our experience suggests there can be differences in interpretation by the regulators. We would also advise a further meeting with the regulator during the planning of the application work to agree the approach and level of detail.

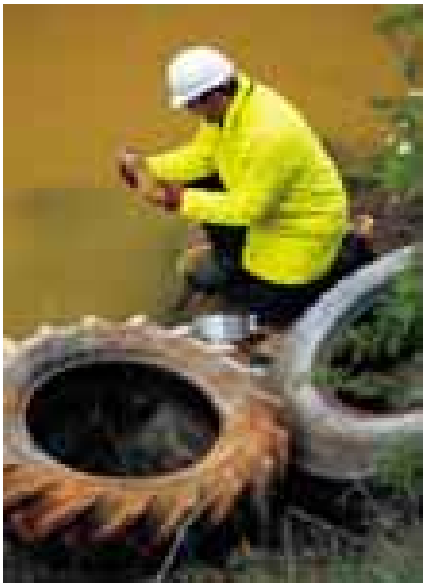
Once the first meeting with the regulator has taken place, and the scope has been defined, the next step is to carry out a detailed 'gap analysis'. The gap analysis gathers together all the information the company has on environmental compliance and is used to determine where the shortfalls exist. Entec has been assisting clients with gap analyses for PPC and other environmental legislation for several years. Our skilled staff will be able to help in assessing the information requirements for each individual application and determining the next steps forward.

Using any data shortfall identified by the gap analysis the necessary technical assessments are then carried out to overcome the gaps. Once the necessary data has been collated and processed, the application can then be made following the structure and form of the technical guidance notes. Entec's experience shows that following the structure of the guidance notes and templates helps speed the process for determining the validity of the application.

Finally, we have found that the amount of resource required to prepare a successful PPC application is easy to underestimate. This can mean that a company's staff resources are distracted from the management of the facility and costs can be higher than anticipated. Entec's skilled team can help to plan resource inputs realistically and support the application with specialist skills, provide guidance to your staff managing the process or additional resources. All our clients have had their applications duly made and permits issued as appropriate.

Regulatory interpretation and compliance

Entec has considerable experience working with companies in sectors such as food and drink, metals, paper, chemicals, power, water, waste management and petrochemicals to ensure regulatory compliance, with both applications and subsequent condition requirements. We negotiate with the EA, SEPA and local authorities to agree the appropriate regulatory interpretation for processes and operations which are complex and could be classified under a number of sections of the regulations. We also work on behalf of local authorities by undertaking compliance inspections to assess a company's progress in implementing Part A2/B improvement conditions. Our policy work with DEFRA, EA and the EC also helps to provide an insight into the interpretation of the regulations and appreciation of forthcoming developments. This understanding has been fed into the PPC process by our work to support the EA in developing electronic application and guidance templates, training EA staff and developing sector specific guidance.



Contaminated land (site condition reporting)

Entec's expert land quality assessment capability is held in high regard by customers such as Northumbrian Water, the Ministry of Defence, the Crown Estate and the National Grid. Our flexible approach to the requirements of PPC enables us to respond to the evolving guidance such as H7 so that we scope our work to deliver exactly what is required. An example of this is undertaking only non-intrusive work, to produce a Site Report with any intrusive work as part of the post permit Site Protection and Monitoring Programme.

Noise

Entec's noise experience is diverse and encompasses work in a variety of different sectors, including industry, transport and leisure. Work is performed both in the form of stand-alone assessments of specific noise problems, as well as input into comprehensive environmental assessments. Our experience in meeting the requirements of PPC (guidance note H3) has shown that the assessment of available data and limited further survey work will meet most of the application requirements. Only if there was a noise issue would it be necessary for Entec to use its additional experience in the modelling and prediction of noise.

Environmental management

Entec assists clients at all stages in developing, implementing and maintaining an environmental management system. We understand the value an EMS can bring to a company, the importance of it being cost effective in terms of resource and the need for it to meet the regulator's increasing requirements for EMS to assure PPC compliance.

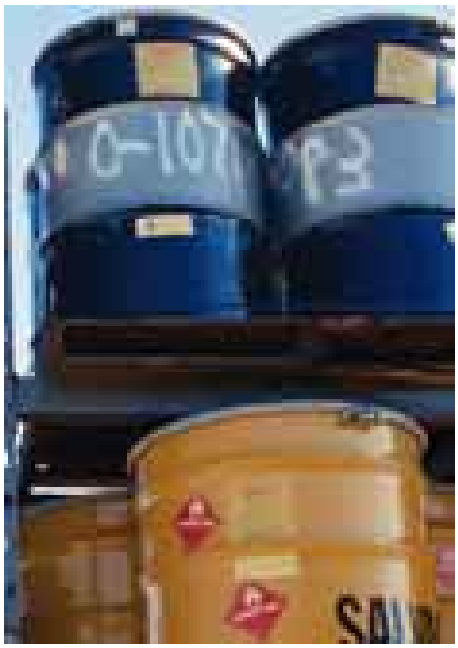
Entec has extensive experience working with organisations in a wide range of industry sectors to implement integrated management systems to ISO 14001, OHSAS 18001 and ISO 9001. Entec itself operates environmental management systems in accordance with the requirements of ISO 14001.

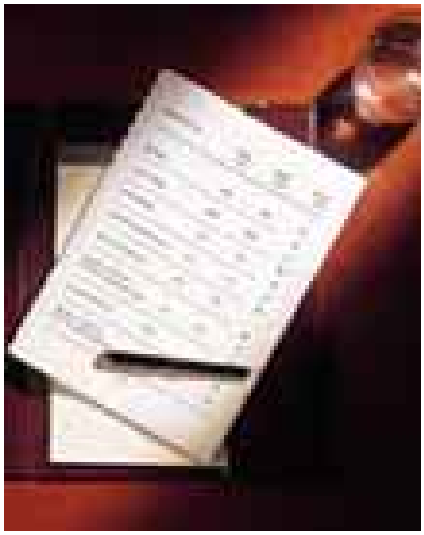
Air quality and impact assessment

Entec's capability in impact assessment is driven by our clients' need to comply with current legislation and the requirements of the regulatory frameworks such as IPC / PPC and the UK Air Quality Strategy. To respond to this need a wide range of technical disciplines must be employed. Our core abilities are in environmental and industrial monitoring, dispersion modelling and impact assessment (including odours). We use this expertise to approach the impact assessment requirements of PPC in a way that uses the H1 methodology as a screening tool with detailed modelling only undertaken on a small number of applications.

Waste minimisation

Entec has extensive experience across a wide range of industry sectors and technical support groups in the area of waste minimisation. This has involved management of regional 'demonstration' projects, process evaluation and optimisation and training of management and operators in Entec's proven waste minimisation methodology. Entec's consultants are also contracted to the Envirowise helpline which operates on behalf of the DTI.





Energy audit

Entec conducts energy audits as required by PPC regulations and to support climate change levy reduction strategies. The purpose of the audit is to identify areas where savings can be achieved, to make recommendations to achieve the savings and to estimate cost implications and pay-back periods for recommendations. Often the starting point for the PPC application is to review the existing in-house energy management procedures, in accordance with Guidance Note H2. Recommendations can then be made as to where procedures can be improved by the introduction of good working practices, possibly linked to an Improvement Condition.

BAT review

There is a fundamental requirement to demonstrate the use of 'best available techniques' across all elements and sections of a PPC installation. Entec's experience across a wide range of industrial sectors allows us to understand the complex issues faced by our clients. 'Best available techniques' include both the technology and the way in which the installation is designed, built, maintained, operated and decommissioned. Entec has considerable experience of helping operators with this requirement, understanding what is currently used and why, interpreting the various BREF and guidance notes and demonstrating compliance. Where change is required, an improvement plan should be proposed in the application. Entec's experience can provide reasoned and logical argument to deliver the maximum environmental improvement whilst minimising impacts on the site.

Beyond the permit

The initial focus may be to obtain the permit, but Entec's philosophy of building lasting customer relationships means that the service can extend into operations and closure. The most efficient matching of the customer's resources with Entec's results in varying degrees of involvement but the knowledge gained and shared as a result of this continuity has proved to be valuable during ongoing regulatory compliance.

The permitting process

Permitting

Approach and project objectives
Scoping and gap analysis
Consultations with regulators
Technical evaluation and justification
Preparation of application

Operation

Environmental monitoring
Negotiating variations to permit
Delivery of performance improvement projects

Closure

Planning closure
Site condition report
Decommissioning and restoration
Permit surrender

Summary of experience

The following pages demonstrate Entec's capabilities in the area of integrated pollution prevention & control ▶

Entec

Creating the environment for business

Paper Mill PPC Licence Application

Sunderland Paper Mill

Under the PPC Regulations, Sunderland Paper Mill (SPM) was faced with the requirement to submit a permit application by the end of February 2001. The paper and pulp sector was the first in the UK to undergo this process. SPM had not been subject to IPC and was seeking support from Entec to help them through the permit application process.

A key aspect of the work was the collation and use of existing information at the site, and the identification of other data requirements. This allowed Entec to undertake a review of the existing 'best available techniques' and see where the conditions at the mill met these standards. A desk study (the 1 (a) report) covering current and historical ground conditions at the site was produced, together with proposals for the 1(b) intrusive investigation. Other key elements included a mass balance for the site (concentrating on water and chemical consumption), and an overview of impact assessment and the improvement plan.

The relationship with site senior staff was important in ensuring full understanding of the Environment Agency's requirements for the permit application, the data collection exercise and the scope of the improvement plan. Entec undertook periodic discussions with the Agency to ensure the content of the application continued to meet their requirements.

As SPM had only a small management team, Entec's role was valuable in providing the necessary resource and expertise to ensure an appropriate and valid application was made.

One of the first PPC applications in the UK

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Creating the environment for business

Energy from Waste Facility Development
SITA Cleveland Waste Management

SITA Cleveland Waste Management own and operate an energy from waste plant at Billingham on Teesside. The existing plant operates with two combustion streams and generates electricity for external sale and on-site use, recycles bottom ash to the aggregates market and recycles recovered metals. The plant was originally designed with a capacity that matched that required to service a waste management contract with the former Cleveland County Council. It has been identified that there is now a requirement for additional capacity at the plant. SITA Cleveland Waste Management commissioned Entec to assist in the development of a third incineration line at the plant.

The specialist services that Entec have provided have been in relation to a preliminary technology evaluation, environmental impact assessment and drafting of PPC authorisation documentation.

Preliminary Technology Evaluation

Entec assisted the client project manager with the analysis of contractor technology proposals received from four technology suppliers offering turnkey solutions. The analysis included the identification of uncertainties within the technology offered and the development of a list of points requiring clarification. Particular attention was paid to the guarantees that were being offered with respect to plant availability and the ability of the technology to meet the more stringent emissions limits set out within the EC Waste Incineration Directive (2000/76/EC).

Environmental Impact Assessment

As part of the planning application submission, supporting documentation for the proposed third line required an environmental impact assessment and environmental statement. Entec's environmental appraisal team including in house specialists in air quality, noise and visual impact assessment developed the documentation for submission to the planning authorities. Approval for the development has been granted.

PPC

The municipal energy from waste plant at Billingham on Teesside, is currently regulated under IPC. With the addition of a new furnace and boiler stream there was a need to modify the authorisation permit issued by the Environment Agency. In the intervening period between the authorisation of the original plant and the submission of proposals for further development the authorisation regime for the plant has been modified to that required under PPC.

Entec worked with SITA Cleveland Waste Management to determine the regulatory boundaries for this new installation, which was found to require a PPC application for both the new and current lines, and all associated activities. Entec has managed and written the full technical report to support the application, working closely with the operator and the design contractor. This is due for submission to the Environment Agency in the latter half of 2002 and if determined would enable the new stream to be operational in late 2004.

Advisory services for an expansion of facilities

Entec

Creating the environment for business

PPC Application
Exel

Exel operates a warehousing facility and drumming line for Great Lakes, and other clients, at Trafford Park, Manchester. The principal activity at the site is the manufacture of organic chemicals, in particular flame retardants and water additives by Great Lakes. In addition to Exel, the Great Lakes manufacturing activities are also supported by Dalkia, who operate the boilerhouse.

The Trafford Park site was previously regulated under Integrated Pollution Control (IPC). Under the Pollution Prevention and Control (PPC) regime, the site was required to submit an application to the Environment Agency (EA) for a permit to operate by the end of March 2003.

Entec was already providing support to Great Lakes to write their Supplementary Technical Information Report as part of the PPC application. An important aspect of the work was to define the stationary technical unit, installation boundary and technically associated activities. Having concluded that both the warehouse and boilerhouse were associated activities, Entec submitted a position paper to the EA to obtain their view as to who were the operator(s) with the responsibility for making the application(s). As a result of this paper, the EA was able to confirm that separate applications were also required for Exel and Dalkia and Entec provided further support by writing Exel's Supplementary Technical Information Report.

Key elements of the work involved the collation and input of data into the EA's H1 Database in order to assess the environmental impacts of the installation, definition of the process, descriptions of the environmental releases and abatement techniques, against the Best Available Techniques. Entec also carried out the completion of the application forms on behalf of Exel, ensuring the submission of a Duly Made application.

As the applications for the organic chemicals manufacturing process and boilerhouse were being made by the respective operators, Entec also provided co-ordination between them to ensure consistency of information contained in the applications.

By undertaking this work, Entec was able to provide further support to Great Lakes, by ensuring that those operations which were essential to their own business, but outside their immediate control, were compliant with legislation and could continue to operate, thereby ensuring business continuity for Great Lakes.

Ensuring business continuity for Great Lakes

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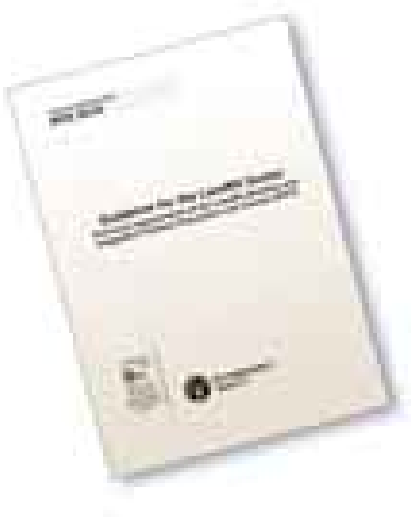
Creating the environment for business

Landfill Sector Technical Guidance Document - IPPC S5.02

Environment Agency



Following the introduction of the Pollution Prevention & Control Regulations 2000 the Environment Agency commissioned Entec to produce the guidance document for the landfill sector, as one of a series of PPC sector specific guidance documents.

The Landfill Directive (Article 1(2)) states that the technical requirements of the IPPC Directive will be fulfilled by compliance with the Landfill Directive. Implementation of the Landfill Directive in England & Wales will take place under the Landfill Regulations, which operate under the Pollution Prevention Control Act 1999.

In preparing the guidance for the landfill sector, Entec drafted the document as a route map to:

- identify the technical requirements of the Landfill Directive and the options available to meet these requirements (i.e. the BAT options);
- provide a clear structure and methodology which operators should follow during the PPC permit application process, to ensure that all aspects of the Landfill Directive PPC regulations have been addressed.
- provide a summary of BAT for the landfill sector and UK experience which are relevant in the UK context expressed, where possible, as clear indicative standards and which need to be addressed by applicants;
- provide an arrangement of information which allows the reader to find, either within the document or as is more likely to be the case, to be directed to other technical guidance documents associated with the sector, where the relevant guidance can be found.
- minimise the effort by both operator and regulator during the permitting of a landfill installation by use of a clear structure and methodology;
- improve the consistency of applications by ensuring that all relevant issues are addressed; and
- increase the transparency of the permitting process by having a structure in which the operators response to each issue, and any departures from the standards, can be seen clearly.

Providing underpinning technical guidance for the landfill sector

Entec

Creating the environment for business

PPC Support – Trafford Park
Great Lakes Manufacturing

Great Lakes Manufacturing produce organic chemicals, in particular flame retardants and water additives, on a large and long established site at Trafford Park, Manchester. The primary manufacturing process is supported by Dalkia and Exel who, respectively operate the boiler-house and provide warehousing services, including product drumming.

The chemicals manufacturing processes was previously regulated under integrated pollution control (IPC). To operate under the pollution prevention and control (PPC) regime, the site was required to submit a 'duly-made' application to the Environment Agency (EA), by the end of March 2003, as prescribed in the PPC regulations for some organic chemicals activities. The company decided to use external support in preparing their application and chose Entec to write their 'supplementary technical information report' as part of this process.

An important aspect of the work was to define the installation boundary and who were the operator(s) with the responsibility for making the application(s). Ultimately, accompanying PPC applications were also submitted by Dalkia and Exel. Other key elements of the work involved a boundary noise survey, collation and input of data into the EA's H1 Database in order to assess the environmental impacts of the installation, definition of the process, descriptions of the environmental releases, abatement techniques and relevant 'best available techniques'. A further important feature was demonstrating how management techniques were used to control the risks associated with a complex and large-scale facility.

As the applications for the boiler-house and warehouse were being made by the respective operators, it was important for Entec to liaise with them to ensure consistency of information contained in the applications. As a result of this, Entec was asked to further support Exel by writing their supplementary technical information report.

The relationship with site senior staff was important and their full understanding of the requirements of a permit application, the data collation and the review process helped to ensure that an appropriate and valid application was 'duly made' in the relevant period.

Providing expertise in preparation of PPC application

Entec

Creating the environment for business

PPC Support – Holywell Site
Great Lakes Manufacturing

The Great Lakes business at the Holywell site involves the contract development and custom synthesis of fine organic chemicals and pharmaceutical, veterinary and speciality chemical products.

The site has been previously regulated under integrated pollution control (IPC). Under the pollution prevention and control (PPC) regime, the site was required to submit an application to the Environment Agency (EA) for a permit to operate by the end of March 2003. This deadline is prescribed in the PPC regulations for some organic chemicals activities. The company decided to use external support in preparing their application and chose Entec to produce their 'supplementary technical information report' as part of this process

An important aspect of the work was the collation and input of data into the EA's H1 Database, including estimating worst case emissions to air and sewer.
The output was used to structure the assessment that considers the environmental impacts on sensitive receptors, in particular the adjacent and nationally important Dee Estuary, which supports significant numbers of bird species.

Other key elements of the work involved a baseline site condition report, boundary noise survey, definition and description of the processes, descriptions of the environmental releases, abatement and other relevant 'best available techniques'. A further important feature is demonstrating how management techniques are used to control the risks associated with a complex and rapidly changing production mix.

The relationship with site senior staff was important and their full understanding of the requirements of a permit application, the data collation and the review process helped to ensure that an appropriate and valid application was 'duly made' in the relevant period.

Private sector clients

The chart below demonstrates Entec's IPC/PPC experience across a range of private sector clients.

	Energy	Metals	Minerals	Chemical	Waste/Water	Paper/Coatings	Food/Drink
Pre-application support, scoping and gap analysis (if separate from below)	AES Partington	Kaye Aluminium		Astra Zeneca	United Utilities	Rolls Royce Adtranz	Cadbury Trebor Bassett Cavaghan & Gray (Northern Foods) Walls/Birds Eye Unilever
Support covering preparation of full application	AES Partington Scottish Energy	Fusion Automation		Great Lakes Chemicals Associated Octel BoC Intel Dascem Ondeo Nalco IFF Warwick International	Cleveland Waste Management SITA Scottish Energy Northumbrian Water Scottish Water Premier Waste Ecological Power Lloyds Environmental	Sunderland Paper Aylesford Newsprint Sconce Furniture Armstrong World Industries	Omega Proteins Interbrew UK Grampian Food Robbins Rendering
Provision of specialist technical inputs e.g. BAT, air, noise, site condition, ecology	Northern Ireland Generation British Energy Powergen Energy Developments	Britannia Zinc Climax Molybdenum	Owens Corning Knauf Alcopo	Avocado Warwick International Grace Dearborn Clariant Hays Chemicals Rohm & Haas Great Lakes Contract Chemicals Exchem Hickson & Welch Air Products BP Chemicals	Shanks Waste Solutions Novera Energy Thames Waste Management Eden Waste Surrey Waste Management Caird Bardon Southern Water	Shotton Paper Robert Fletcher Johnson Mattley	Cadbury Schweppes Cargill British Sugar Sun Valley Foods Masterfoods
Pre-application and ongoing environmental monitoring	Independent Energy Energy Developments	Aluminium Powder Co. Britannia Zinc	Rugby Cement RMC PPG Industries	ACS Dobfar Power Innovations	Wyvern Waste	Specialist Anodising Aluminium Powder Company	Cadbury Schweppes Cerestar
Post permit improvement conditions				Bush Boake Allen (Aroma & Fine Chemicals) Warwick International Union Camp	Cleanaway	Shotton Paper BIP Speciality Resins Armstrong World Industries	Cadbury Schweppes British Sugar

Public sector clients

DEFRA/DETR/DoE

Best available techniques reviews

- Technical and economic study of processes within the waste disposal and recycling sector
- Pollution control of processes involving metal carbonyls and production of inorganic compounds of chromium, magnesium, manganese, nickel and zinc
- Pollution control of inorganic halogen processes
- Pollution control for clinical waste incineration
- Pollution control for phosphorus and its compounds
- Continuous monitoring instrumentation for large combustion plant
- Large combustion plant instrument calibration
- Continuous monitoring instrumentation for incineration plant
- Pollution control from carbonisation processes
- Assessment of continuous monitors for incineration processes
- Assessment of continuous monitors for the minerals sector

Others

- Review of financial implications of OPRA
- Review of responses to A1 (Glass)
- Identification of BAT for phosphate removal from effluents

HMIP/Environment Agency

Preparation of Chief Inspector's guidance notes

- Metal carbonyls and inorganic compounds of chromium, magnesium, manganese, nickel and zinc
- Manufacture, use or release of halogens or oxy-halo compounds
- Manufacture, use or release of hydrogen halides or manufacture of their acids
- Production of phosphorus or oxide, hydride or halide of phosphorus
- Review of carbonisation and associated processes - coke manufacturing

Preparation and update of guidance notes

- PG6/3 Chemical treatment of timber and wood based products
- PG 6/7 Printing and coating of metal packaging
- PG 6/8 Textile coating and finishing processes
- PG 6/15 Coating in drum manufacturing and reconditioning processes
- PG 6/32 Adhesive coating processes
- PG 6/33 Wood coating processes
- PG 6/40 Coating and recoating of aircraft and aircraft components
- PG 6/41 Coating and recoating of rail vehicles
- PG 6/20 Paint application in vehicle manufacturing
- PG 6/22 Leather finishing
- PG 6/25 Vegetable oil extraction and fat and oil refining
- Development and testing of new H1 software tool
- Horizontal guidance note on odours (H4)
- Development of guidance for new landfill permits
- Revision of draft H1 (Impact assessment) guidance
- PPC BAT Guidance Food and Drink Sector

Entec

For further details on
Entec's full range of environmental and engineering services:

Telephone
0800 371733 (UK)
+44 (0) 191 272 6100 (Overseas)

Fax
0191 272 6592 (UK)
+44 (0) 191 272 6592 (Overseas)

E-mail
info@entecuk.co.uk

Web site
www.entecuk.com