The Environment Agency – Regulating to Improve Air Quality

We have a number of duties related to air quality:

1. We ensure that the industrial facilities we regulate comply with EU obligations on the UK such as Air Quality Directives and the National Emissions Ceiling Directive
2. We ensure that the industrial facilities we regulate do not contribute significantly to breaches of AQS objectives.
3. We support local authorities in improving local air quality.

Purpose of this note

This document is intended to clarify our role in air quality matters and confirm our current policies. It is aimed at readers external to and within the Environment Agency. It replaces the documents “The Environment Agency and Local Air Quality Management” (September 1998) and “Environment Agency Responsibilities in Relation to Air quality Management Areas” (December 2000).

Local Air Quality Management

There are a number of partners in England and Wales who work towards ensuring that the air that we breathe is of an acceptable quality. Local authorities, the Mayor of London, the Welsh Assembly Government, Defra, development/transport planners and ourselves all have an important role to play.

Part IV of the 1995 Environment Act required the Secretary of State to publish a national Air Quality Strategy and also established the system of Local Air Quality Management (LAQM). The Government and the Devolved Administrations published the first National Air Quality Strategy in 1997. The Strategy was revised in 2000 to become the Air Quality Strategy for England, Wales, Scotland and Northern Ireland (AQS) and an Addendum was published in February 2003. The Strategy has had a major review and a revised version was published in July 2007. The Government has overall responsibility for ensuring that the UK meets the various limit values that have been set by the EU Air Quality Directives and Daughter Directives. The Government uses data from an extensive UK network of air quality monitoring stations (many of which are operated by local authorities) and modelling to assess compliance with AQS objectives and EU limit values.

The LAQM process places a statutory responsibility on local authorities to review and assess local air quality for seven pollutants ie particles, nitrogen dioxide, sulphur dioxide, benzene, 1,3-butadiene, carbon monoxide and lead. If the objectives for these pollutants are not likely to be met then the local authority must declare an Air Quality Management Area (AQMA). They must

then produce an Action Plan (AQAP) to work towards meeting the air quality objectives.

Local authorities have now carried out three rounds of full air quality review and assessments as well as updating and screening assessments, the last of which was in 2007. They will continue to follow this mechanism for the foreseeable future. Over 200 local authorities had declared AQMAs in England and Wales by the end of 2007 and the majority of these are for traffic-related nitrogen dioxide and particulates (PM_{10}). Local authorities are now encouraged to incorporate any traffic-related AQAPs into their Local Transport Plans and many have done so.

The recent revision to the AQS also sets an objective for $PM_{2.5}$ as well as a percentage reduction in its background levels – a concept known as 'exposure reduction'. These $PM_{2.5}$ objectives are not yet covered by LAQM and the Government and devolved administrations have yet to decide how it will be implemented.

The 1995 Environment Act requires us to have regard to the Government's AQS and so we need to ensure the facilities[1] we regulate under the Environmental Permitting Regulations 2007 (EPR) do not cause air quality problems or make existing ones worse.

International Obligations

The EU has published four Air Quality Daughter Directives (AQDDs) and the UK Government has incorporated the requirements of these into national legislation. The first two AQDDs contain 'limit values' for lead, nitrogen dioxide, particulate matter (PM_{10}), sulphur dioxide, benzene and carbon monoxide. Like AQS objectives they apply over a relevant period of time but unlike them, we believe they apply everywhere outside of a regulated facility's boundary, whether or not people are exposed to the pollutant. But these and the 3rd AQ Daughter Directive have now been consolidated by the EC into a new Ambient AQ Directive (that was published in June 2008), 2008/50/EC. The exposure criteria will change to be similar to that in the AQS when the new Ambient AQ Directive is transposed into UK law (due by June 2010). The EC has included target and limit values for $PM_{2.5}$ as well as a target to reduce exposure in the new Ambient AQ Directive.

We have a direct obligation under EPR to ensure that the facilities we regulate do not contribute significantly to a breach of a limit value.

The 3rd AQDD sets target values and long-term objectives for ozone. The UK Government has an action plan to deliver these, part of which relies on regulation of industrial sources under EPR to use the Best Available

[1] Formerly Part A(1) installations permitted under the Pollution Prevention and Control Regulations 2000 (PPC) and sites licensed under the Waste Management Licensing Regulations 1994 (WMLR), including exemptions.

Techniques (BAT) to deliver reductions in substances that are precursors to the formation of ozone.

The 4th AQDD sets target values to be "attained as far as possible" for arsenic, cadmium, nickel and benzo(a)pyrene (BaP). For industrial installations this is by implementing measures within BAT through EPR regulation.

The EU Ceilings Directive sets obligations on the UK to achieve targets for the national releases of ammonia, nitrogen dioxide, non-methane VOCs and sulphur dioxide by 2010. The Directive is currently being revised and it is possible that a target for particulate matter may be set for the future. The Government expects EPR regulation to use BAT to deliver a significant contribution to the reductions that are required in these pollutants by 2010.

The UNECE's Gothenburg Protocol sets very similar national ceilings to the EU. But it also contains an annex with emission limit values (ELVs) for specific processes or pieces of equipment that may be regulated by us. The UK has signed up to the Gothenburg Protocol but with a 'reservation' that the ELVs for new lean burn engines (such as landfill gas engines) will not be applied because it is not feasible to do so.

Possible Site Issues

We regulate the release of air pollutants from large or more complex industrial installations in England and Wales under the Environmental Permitting Regulations 2007 (EPR). Most of these were previously regulated under Integrated Pollution Control (IPC) regime, which was superseded by the Pollution Prevention Control (PPC) regime that has now been superseded by EPR. When the PPC regime was introduced we started to regulate additional sectors such as large intensive livestock units, surface treatment and food manufacturing that we had not previously regulated under the IPC regime.

We also regulate facilities where waste is handled, stored, treated or disposed of, such as landfills, waste transfer and treatment facilities under EPR. Some of these facilities are issued with a permit and some are exempt from the need for a permit but do have to be registered with us. These were previously regulated under the Waste Management Licensing (WML) regime.

PPC and WML were combined into a common regulatory system when the Environmental Permitting Regulations came into force in April 2008. But the overall environmental protection objectives and criteria are the same.

We have found that several sectors we regulate have a potential to affect air quality significantly. These are listed in the table below. Some individual facilities in these sectors have already been found to contribute significantly. We have been working with local authorities for some time to implement the necessary improvements. We intend to continue this work for the more recent requirements for particulate exposure reduction, heavy metals and BaP.

Sectors with Potential to Affect Air Quality

Pollutant	Sector
Sulphur Dioxide	Coal and oil-fired power stations Cement works Fletton brickworks Oil refineries Other combustion
Nitrogen Dioxide	Landfill gas engines Other combustion
Particulates (including exposure reduction)	Steel works Cement works Waste handling sites Other combustion
Lead	Non-ferrous metals
Nickel	Steel works Non-ferrous metals
BaP	Coking Non-ferrous metals

In the early stages of LAQM, we identified that there was a high potential for the sulphur dioxide released by coal and oil-fired power stations to cause breaches of AQS objectives, particularly the 15 minute average. We changed their IPC authorisations to add conditions that restricted the amount of sulphur dioxide that can be released from individual stations. We also require the operators to monitor ambient levels of sulphur dioxide to demonstrate compliance with AQS objectives. In addition, they have to have an effective air quality management plan to control the effect of any releases from the station. These obligations gave local authorities the confidence to expect that the UK 15 minute average, sulphur dioxide objective would not be breached by these sites. And up to the end of 2007 no power station had caused a breach of that objective.

Meeting UK AQ Objectives

The Environment Act 1995 requires that the Environment Agency "has to have regard to the AQS in discharging its pollution control functions" and is particularly relevant to the EPR permits we regulate facilities under.

Broadly, the AQS requires that for installations specified under the IPPC Directive, the Environment Agency should base EPR permit conditions[2] on

[2] Under the IPC system, authorisations (rather than permits) were issued based on the application of best available techniques not entailing excessive costs (BATNEEC) and best practicable environmental option (BPEO). BAT - as defined in the IPPC Directive – is conceptually very similar to BATNEEC + BPEO.

the application of best available techniques (BAT) in order to meet national objectives.

The Waste Framework Directive (WFD) was implemented in the UK by the Waste Management Licensing Regulations 1994. These cover activities where waste is recovered or disposed of. But this legislation was issued well before the AQS and thus, does not specifically refer to it. However they place a duty on operators to apply best practice "to ensure that waste is managed properly, recovered or disposed of safely and *does not cause harm to human health or pollution of the environment*". This duty has been transferred into EPR for waste operations and it is this aspect which is most relevant to the requirements of the AQS.

We will investigate what improvements can be made if a facility we regulate is contributing significantly to the breach of a national objective or is projected to do so. Occasionally we will require an operator to carry out *ad hoc* monitoring of local air quality or to install permanent monitoring stations.

The AQS indicates that it does not expect the Environment Agency will generally set permit conditions going beyond the application of BAT in order to achieve a national objective. This is reflected in the EPR Guidance[3]. But if a national objective is likely to be breached then permit conditions may need to be more demanding than those normally associated with BAT.

We will ensure that, as far as possible, EPR permit conditions for waste operations, or action plans, are in place that will enable improvements to be made to meet the relevant national objective by the required date. Exempt waste operations will need to meet the relevant objectives as laid down in the WFD, but do not as such, have conditions or action plans.

When considering compliance with national air quality objectives, the air quality regulations (Air Quality (England) Regulations 2000 and Air Quality (Wales) Regulations 2000) make it clear that likely exceedences of the objectives should only be considered where there is relevant public exposure. We work to the guidance given by Defra to local authorities on how to assess relevant public exposure. It is contained in their publication LAQM.TG (03)[4]. This is likely to be revised late in 2008.

The 2007 revision of the AQS introduced the concept of exposure reduction. It is too early to say how the facilities we regulate are contributing to local background levels of $PM_{2.5}$. But our efforts to help achieve the PM_{10} objectives will also contribute to achieving the annual target for $PM_{2.5}$. A number of facilities are located within or close to urban areas that will be covered by the exposure reduction approach. It is thus very important that we ensure the operators of these facilities use BAT or appropriate measures, as applicable, to minimise the release of particulates.

[3] Environmental Permitting Guidance, the IPPC Directive, March 2008

[4] Local Air Quality Management. Technical Guidance LAQM TG (03). Department for Environment Food and Rural Affairs, 2003.

Meeting EU Limit and Target Values

The Environmental Permitting Regulations 2007 require that the Environment Agency sets emission limit values or such other conditions in permits as may be required to ensure compliance with EU AQ limit values, even if these are beyond BAT for installations specified under the IPPC Directive. Part I of the Environmental Protection Act 1990 had a very similar requirement for IPC authorisations, as did the PPC Regulations for permits.

The duty for waste operations under EPR to apply the principles of the WFD ie best practice "to ensure that waste is managed properly, recovered or disposed of safely and *does not cause harm to human health or pollution of the environment*" is the aspect which is most relevant to the obligation on the UK to comply with EU air quality limit and target values.

The Air Quality Standards Regulations 2007 transpose the 4th AQDD into UK legislation and consolidate the transposition of the first three AQDDs. The 4th AQDD does not require permit conditions to go beyond BAT to achieve its target values.

If the emissions from a regulated facility alone could lead to a breach of an the EU AQ limit value then we must include permit conditions to prevent this. However, we have found that the usual circumstance is that where an EU AQ limit value is breached, it is mainly a result of emissions from non Agency-regulated sources ie traffic. Under these circumstances we have to take a view on what level of reduction should be borne by the installation.

We will investigate what improvements can be made if we find a facility we regulate is projected to contribute significantly to the breach of an EU AQ limit value. Currently EU limit values apply at all locations outside the facility's boundary, whether there is relevant public exposure or not. The new Ambient AQ Directive has changed this to only apply at locations where there is relevant public exposure, but this will not take effect until the Government has transposed the Directive into UK law. The Environment Agency must set more stringent emission limits or other controls than would be the case under BAT, or appropriate measures for waste operations, if they are needed to achieve compliance with an EU limit value where the facility is making a significant contribution.

Similarly we may find that a facility is contributing significantly to the breach of an EU AQ target value. We will investigate what improvements can be made within BAT or appropriate measures and require the operator to implement these. But this may not completely remove the exceedence of the target value.

We have reviewed the releases of air pollutants from the sites we regulate and have set corporate annual targets for reducing these. We are implementing BAT and appropriate measures to deliver these targets and this

will contribute to the UK's obligations under the EU Ceilings and 3rd AQD Directives.

The new EU Ambient AQ Directive is likely to contain requirements on Member States to address exposure reduction for $PM_{2.5}$. We would expect that our actions to help deliver the UK's exposure reduction targets will make a contribution to this.

Our Commitments

The Environment Agency is committed to ensuring that any industrial installation or waste operation we regulate will not contribute significantly to breaches of an AQS objective.

It is a mandatory requirement of EPR legislation that we ensure that no single industrial installation or waste operation we regulate will be the sole cause of a breach of an EU air quality limit value. Additionally we have committed that no installation or waste operation will contribute significantly to a breach of an EU air quality limit value.

We will ensure that BAT and other appropriate measures are used to deliver the maximum improvements to air quality where UK exposure reduction objectives or EU air quality target values are being exceeded.

Working with Local Authorities

The Environment Agency is committed to working with local authorities and to play our part fully in LAQM. We formalised this commitment in the document "Working Better Together Protocol Series, Protocol No.1: Air Quality Management (April 2003)". This was signed off jointly with the Local and Welsh Local Government Associations.

Facilities we regulate may be covered by freestanding AQMAs or ones, which are transport-related and incorporated into Local Transport Plans. We will continue to provide information we are asked for which relates to:

- the current releases from the facility(s);
- any assessments on the effect of the releases from the facility(s) on local AQ;
- any plans already in place which will deliver future improvements for local AQ;
- any equipment or operational changes which could deliver improvements for local AQ.

We will continue to agree improvements with local authorities for facilities we regulate that contribute significantly to breaches of an AQS objective. These improvements will be incorporated into the permit or action plan for the regulated facility.

Spatial and transport planning has a major role over the longer term in reducing both the sources of air pollution and the exposure of individuals to poor air quality. In addition to our regulatory responsibilities we also have an important role as a statutory or recommended consultee in the spatial and transport planning processes in England and Wales. We have developed a number of key, high-level air quality objectives for regional planning bodies and local authorities in relation to transport and spatial planning. We will promote these objectives in our responses to consultations.

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Jim Storey
AQ Policy
Environment Agency

0118 953 5384
Jim.storey@environment-agency.gov.uk

14 July, 2008