

Consultation on draft proposals to:
(a) transpose Directive 2004/107/EC of the European Parliament and of the Council relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air; and
(b) streamline air quality legislation by consolidating existing air quality legislation with proposed legislation

**Environmental Policy Division
Department of the Environment**

December 2006

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Environmental Policy Division (Air and Environmental Quality Team) 20-24 Donegall Street Belfast Bt1 2GP				

Section 1: Proposal	3
1.1 Purpose of this consultation paper.....	3
1.2 Summary	3
1.3 Comments invited	5
1.4 Where to obtain further copies of the consultation paper.....	6
Section 2: Consolidation of Existing Air Quality Legislation.....	7
2.1. Background.....	7
2.2 Consolidation of existing air quality legislation.....	7
2.3 Obligations in the regulations.....	8
2.4 Particular issues on the regulations	8
2.5 Regulatory Impact Assessment	9
2.6 Consultation question	9
Section 3: Implementing the Fourth Daughter Directive	10
3.1 Objectives	10
3.2 The basic requirements of the fourth Daughter Directive.....	10
3.3 Transposition of the fourth Daughter Directive.....	11
3.4 Regulatory Impact Assessment	13
3.5 Consultation question	13
Section 4: Partial Regulatory Impact Assessment.....	14
Title of proposal	14
Purpose and intended effect.....	14
Consultation.....	16
Options	16
Sectors and groups affected.....	17
Benefits.....	17
Costs	18
Small Firms Impact Test.....	19
Competition assessment	20
Enforcement, sanctions and monitoring.....	21
Summary	21
Annex I: Current Regulatory Controls	
Annex II: Proposed Draft Air Quality Standards Regulations (Northern Ireland) 2007	
Annex III: Screening for Equality Impact Assessment	
Annex IV: Screening for Human Rights Implications	

Section 1: Proposal

For the transposition of Directive 2004/107/EC of the European Parliament and the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons (PAHs) in ambient air; and to streamline air quality legislation by consolidating existing air quality legislation with proposed legislation.

1.1 Purpose of this consultation paper

The purpose of this consultation paper is to set out the proposals to transpose Directive 2004/107/EC of the European Parliament and the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and PAHs in ambient air (*fourth Daughter Directive*).

1.1.1 This consultation paper sets out the background to the fourth Daughter Directive and actions that the Department of the Environment proposes to take to implement the necessary measures to meet our obligations. The extent of the measures proposed is minimal.

1.1.2 The purpose of this paper is *also* to set out the background to existing air quality legislation and the proposals to streamline the current legislation by consolidating the existing Air Quality Limit Values Regulations (Northern Ireland) 2002, the Air Quality (Ozone) Regulations (Northern Ireland) 2003 and all subsequent amending legislation with the proposed set of Regulations that give effect to the fourth Daughter Directive. These measures aim to simplify air quality legislation and do *not* aim to change the provisions of the existing legislation.

1.1.3 This paper includes a partial regulatory impact assessment (RIA) intended to identify and understand the implications of the proposals to transpose the fourth Daughter Directive. The assessment of costs and benefits in this RIA *only* apply to the transposition of that Directive. The RIA does *not* apply to the proposal to consolidate existing legislation with the proposed new legislation, as these measures do not change the substance of the provisions deriving from the existing legislation. The RIA applies to the whole of the UK.

1.2 Summary

This consultation paper seeks views on the proposed Air Quality Standards Regulations (Northern Ireland) 2007. These Regulations are intended to:

- a) transpose Directive 2004/107/EC¹ of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and PAHs in ambient air (fourth Daughter Directive); and

¹ (OJ No L 23, 26. 01.05, p.3)

b) revoke the current Air Quality Limit Values Regulations (Northern Ireland) 2002 and the Air Quality (Ozone) Regulations (Northern Ireland) 2003 and consolidate the provisions of these Regulations which give effect to:

- Council Directive 96/62/EC² of 27 September 1996 on ambient air quality assessment and management (Air Quality Framework Directive);
- Council Directive 1999/30/EC³ of 22 April 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air (first Daughter Directive);
- Directive 2000/69/EC⁴ of the European Parliament and of the Council of 16 November 2000 relating to limit values for benzene and carbon monoxide in ambient air (second Daughter Directive); and
- Directive 2002/3/EC⁵ of the European Parliament and of the Council of 12 February 2002 relating to ozone in ambient air (third Daughter Directive).
- The current Regulations also incorporate requirements imposed by the following: Commission Decision 2001/744/EC⁶ amending Annex V to Council Directive 99/30/EC and Directive 2003/35/EC⁷ of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC.

1.2.1 The proposed Air Quality Standards Regulations (Northern Ireland) 2007 apply only to Northern Ireland.

Section 1 of this paper sets out the purpose of the consultation paper.

Section 2 of the paper introduces the background to existing air quality legislative framework into which Directive 2004/107/EC fits and sets out the objective to consolidate the existing air quality legislation into the new set of Regulations that give effect to the provisions of Directive 2004/107/EC.

Section 3 of the paper provides a background to Directive 2004/107/EC. It summarises the requirements of the Directive and explains what measures will be needed to meet those requirements.

Section 4 contains the Partial Regulatory Impact Assessment for Directive 2004/107/EC.

Annex I contains a table of current controls.

² (OJ No L 296, 21.11.96, p.55)

³ (OJ No L 163, 29.06.99, p.41)

⁴ (OJ No L 313, 13.12.00, p.12)

⁵ (OJ No L 67, 9.03.02, p.14)

⁶ (OJ No L 278, 23.10.01, p.35)

⁷ (OJ No L 156, 25.06.03, p.17)

Annex II contains a copy of the draft Air Quality Standards (Northern Ireland) Regulations 2007

Annex III contains the screening for Equality Impact Assessment

Annex IV contains the screening for Human Rights Implications

A link to the Directive 2004/107/EC can be found below:

[http://eur-](http://eur-lex.europa.eu/LexUriServ/site/en/oj/2005/l_023/l_02320050126en00030016.pdf)

[lex.europa.eu/LexUriServ/site/en/oj/2005/l_023/l_02320050126en00030016.pdf](http://eur-lex.europa.eu/LexUriServ/site/en/oj/2005/l_023/l_02320050126en00030016.pdf)

1.3 Comments Invited

The Government proposes to transpose the requirements of Directive 2004/107/EC (4th Daughter Directive) with the proposed Air Quality Standards Regulations (Northern Ireland) 2007. The proposed measures do *not* aim to go beyond the minimum requirements of the Directive.

1.3.1 The Government proposes to consolidate the existing air quality legislative framework with the proposed new Air Quality Standards Regulations (Northern Ireland) 2007, with an aim to streamline air quality legislation. This measure does *not* aim to change the provisions of the existing legislation.

1.3.2 The Department of the Environment would welcome your views on the following issues in particular, as well as more general comments on the proposals **by the closing date of 23 February 2007:**

- would the draft *Air Quality Standards Regulations(Northern Ireland) 2007* transpose Directives 96/62/EC, 1999/3330/EC, 2000/69/EC, and 2002/3/EC and bring all relevant provisions into law, and go no further than the minimum requirements of these Directives?
- do you consider that the draft Regulations in Annex II transpose the requirements of Directive 2004/107/EC without creating any new obligations or regulatory burdens, except on the Department of the Environment?

Comments quoting “The Air Quality Standards Regulations (Northern Ireland) 2007” should be sent to the address or e-mail below:

Beth Hodgett
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20-24 Donegall Street
Belfast
BT1 2GP
E-mail: beth.hodgett@doeni.gov.uk

The consultation paper is being sent to air quality stakeholders. All responses will be considered and taken into account when implementing the Directive.

1.4 Where to Obtain Further Copies of the Consultation Paper

Additional copies of this document can be obtained from the address above.

Section 2: Consolidation of Existing Air Quality Legislation

2.1. Background

For many years now legislation has established standards for ambient air quality across the European Union. The most recent legislation was transposed in a series of regulations going back to 2002/3. These regulations now cover four different Directives on air quality and have themselves been amended to take account of other provisions. We are therefore taking the opportunity of transposing the fourth (and final) air quality Daughter Directive in this series to consolidate the existing provisions, and to redesign them so that the obligations are clearer and expressed in a more consistent form.

The current regulations⁸ (and their predecessors⁹) transposed the:

- Air Quality Framework Directive (96/62/EC);
- first Daughter Directive (1999/3330/EC),
- second Daughter Directive (2000/69/EC); and
- third Daughter Directive (2002/3/EC).

These regulations gave effect to European Union obligations for benzene, carbon monoxide, lead, nitrogen dioxide and oxides of nitrogen, ozone, particles (as PM₁₀)¹⁰, and sulphur dioxide in ambient air.

2.2 Consolidation of existing air quality legislation

The new *Air Quality Standards Regulations (Northern Ireland) 2007* would provide a new transposition of these four Directives and also transpose the fourth Daughter Directive (2004/107/EC). This chapter deals largely with the Framework Directive and the first three Daughter Directives; the fourth Daughter Directive is covered later.

2.2.1 The European Commission has itself proposed¹¹ a consolidation of these Directives and updating of their provisions, but those proposals are still in negotiation and are not expected to be agreed for some time. The current consolidation does not take account of the Commission's proposals.

2.2.2 The proposals for consolidating air quality legislation aim to streamline legislation and do *not* aim to create any new or additional obligations on industry stakeholders. In other words, the provisions of the existing legislation do not change.

⁸ The Air Quality Limit Value Regulations (Northern Ireland) 2002 (S.R. 2002 No.94)(as amended by The Air Quality Limit Values (Amendment) Regulations (NI) 2002 (S.R. 2002 No.357) and (The Air Quality Limit Values (Amendment) Regulations (NI) 2004 (S.R. 2004 No.514)) and The Air Quality (Ozone) Regulations (Northern Ireland) 2003 (S.R. 2003 No.240)(as amended by The Air Quality Limit Values (Amendment) Regulations (NI) 2004 (S.R. 2004 No.514))

⁹ The Air Quality Standards Regulations (Northern Ireland) 1990 (S.R. 1990 No.145)

¹⁰ Particles with a diameter of 10 microns and below

¹¹ Com (2005) 447

2.3 Obligations in the regulations

The new regulations would transpose the Framework Directive and all four Daughter Directives. They would revoke the existing regulations covering the Framework Directive and the first three Daughter Directives. There is a fuller discussion of the fourth Daughter Directive later in this consultation paper.

2.3.1 The purpose of all of the Directives is to protect human health and the environment. They achieve this by setting 'limit values' for the main components of air pollution and 'target values' for ozone and substances subject to the fourth Daughter Directive. A limit value is a maximum concentration in ambient air to be met by a specified date. A target value is a maximum concentration in ambient air that a Member State should try to achieve.

2.3.2 The main duty on Northern Ireland Departments under the 2007 Regulations would be to meet limit values by the due dates. There would be duties to carry out monitoring and reporting for pollutants across Northern Ireland. There would also be other duties, and the Regulations themselves should be consulted for the details.

2.3.3 All of the duties and obligations are all taken directly from those in the Directives. As are the numerical values for the limit values and the dates that they come into effect. The intention of the earlier regulations was to do no more than deliver the minimum requirements of the Directives and that remains the intention for the draft 2007 Regulations. The consolidation and redesign is not intended to alter in any way the existing obligations under the current regulations, nor are they intended to go beyond the obligations in the Directives themselves.

2.3.4 The Regulations do not themselves create any direct obligations for industry. However, regulators will take them into account when determining permits or other controls on emissions, under other legislation, in order that limit values are not exceeded. There is guidance on how this should be done¹² which is unaffected by the new Regulations.

2.3.5 The Regulations do not themselves specify how limit values should be met and programmes are in place to deliver the obligations¹³. There are many components to these programmes and it is important to realise that they include measures at international level, European Union level, national level, regional level, and local level. At any particular location, measures may be being taken at all of these levels and compliance with a limit value is as a result of action at all of them.

2.4 Particular issues on the regulations

In preparing the new Regulations the opportunity has been taken to tidy some provisions that are in the Directives but which have no effect, in some cases

¹² For example: General Guidance Manual on Policy and Procedures for Part C installations: Integrated Pollution Prevention and Control: a practical guide.

¹³ See for example the annual report to the European Commission by Defra on Plans and Programmes at [reference the 2006 consultation]

because the passage of time has rendered them inoperative. For example, some margins of tolerance have not been transposed for those pollutants covered by the first Daughter Directive if the date by which the limit value should be met has already passed. That is because a margin of tolerance only has meaning before that date. Including such provisions would have added to the complexity of regulations with no benefit and so they have been excluded in the interests of clarity.

2.4.1 Similarly we have also not included provisions in Directives that have not been given effect. The 2nd stage PM₁₀ limit value was included in Annex III of the first Daughter Directive, it was not brought into effect by the Directive itself, and would have required the passing of a new Directive. That has not happened, the second stage limit values are not in effect under European law, and have not been included in either the earlier regulations or in these.

2.5 Regulatory Impact Assessment (RIA)

This part of the new Regulations does not aim to change the provisions of the existing legislation, therefore a RIA has not been produced to cover the sections of the new draft regulations covering consolidation of existing regulation, as there are no additional costs, nor benefits, from them. There is however an RIA for the new provisions derived from the fourth Daughter Directive.

2.6 Consultation Question

Dealing here only with the Framework Directive and the first three Daughter Directives, we would welcome views on whether, in practice, the consolidation – as we intend – transposes only their minimum requirements. Another way of putting that question would be to ask whether the new draft Regulations both go no further than the current regulations, which themselves were intended to meet only the minimum requirements in the Directives, and cover all of the provisions in the Directives. Of course, if consultees consider that the Regulations do go either further than the Directives, or fall short in not giving effect to provisions, then it would be helpful to know in what respect.

The consultation question in relation to this aspect of the draft Regulations is:

Question 1: Would the draft *Air Quality Standards Regulations (Northern Ireland) 2007* transpose Directives 96/62/EC, 1999/30/EC, 2000/69/EC, and 2002/3/EC and bring all relevant provisions into law, and go no further than the minimum requirements of these Directives?

Section 3: Implementing the Fourth Daughter Directive

3.1 Objectives

The Directive (2004/107/EC) (*fourth Daughter Directive*) relates to arsenic, cadmium, mercury, nickel and PAHs in ambient air. The primary aim of the Directive is to reduce pollution to levels which minimise harmful effects on human health and the environment. The Directive is linked to the Air Quality Framework Directive (Directive 96/62/EC) which required proposals from the European Commission for regulating these pollutants.

3.1.1 The UK proposes to transpose the provisions of the Directive into UK law but only implement the basic requirements of the Directive and not go beyond. The proposed new legislation, that will give effect to the provisions of the fourth Daughter Directive, does *not* intend to place any unnecessary additional burdens on industry stakeholders. Any obligations arising from any proposed measures are intended to fall upon the Department.

3.2 The basic requirements of the fourth Daughter Directive

The Directive requires that target values (Annex I of the Directive) for the total content within the PM10 fraction of airborne arsenic, cadmium, nickel and, in relation to PAHs, benzo(a)pyrene with the aim of reducing harmful effects on human health, paying particular attention to sensitive populations, and the environment as a whole, should be *attained as far as possible* from 31 December 2012. Benzo(a)pyrene should be used as a marker for the carcinogenic risk of PAHs in ambient air. **(Article 3 and Annex I)**

3.2.1 The Directive requires Member States to take necessary measures to attain the target value, but stipulates these are limited to measures *not* entailing disproportionate costs. The Directive further provides that, regarding industrial installations, these would not involve measures beyond the application of best available techniques (BAT) as required by Council Directive 96/61/EC⁸ of 24 September 1996 concerning integrated pollution prevention and control and clarifies, in particular, that such measures would not lead to the closure of installations. However, they would require Member States to take cost-effective abatement measures in relevant sectors. **(Article 3 and Recital (5))**

3.2.2 In particular, it is clarified that the target values set in the Directive are *not* to be considered as environmental quality standards as defined in Article 2(7) of Directive 96/61/EC and which, according to Article 10 of that Directive, require stricter conditions than those achievable by the use of BAT. **(Recital (6))**

3.2.3 The Directive requires fixed measurement of arsenic, cadmium, nickel and benzo(a)pyrene when concentrations exceed certain assessment thresholds. Supplementary means of assessment, such as modelling, may reduce the required number of sampling points for fixed measurements. The Directive requires further monitoring of background ambient air concentrations

and deposition of these pollutants, as well as mercury and other specified PAHs. **(Article 4 and Annexes)**

3.2.4 The Directive clarifies that standardised accurate measurement techniques and common criteria for the location of measuring stations are important elements in assessing ambient air quality so that the information obtained is comparable throughout the Community. **(Recital (12))**

3.2.5 The Directive requires that information on the concentrations and the depositions of the regulated pollutants should be forwarded to the Commission as a basis for regular reports. This does not require transposition, but it is an obligation the performance of which the Department takes seriously. **(Article 5 and Recital (13))**

3.2.6 The Directive requires that up-to-date information on ambient air concentrations and depositions of regulated pollutants, as well as any exceeding of the target values, should be readily available to the public including relevant organisations. **(Article 7)**

3.3 Transposition of the fourth Daughter Directive

The Department proposes to transpose the Directive by way of the proposed Air Quality Standards Regulations (Northern Ireland) 2007 which can be found in Annex II. All provisions of the Regulations relevant to this Directive apply to Northern Ireland only as air quality is a devolved matter.

3.3.1 The overall aim of the Regulations is to provide an adequate legal framework, within Northern Ireland, to ensure that the obligations imposed by the Directive (as set out above) are fully and properly transposed so that the results required by the Directive can be achieved. However, the Department aims to keep regulatory burdens (other than those imposed on itself) to the minimum in so far as possible.

3.3.2 The Regulations achieve these aims by imposing various duties on the Department. The principal duties are:

- imposition of the target values **(regulation 6)**
- in the Regulations, the relevant pollutants are referred to as “Group B pollutants”
- taking necessary measures to attain the target values **(regulations 7 & 9)**

Regulation 7 stipulates that these are measures not entailing disproportionate costs and, in so far as the relevant emissions relate to IPPC installations, the application of best available techniques in accordance with the IPPC regime.

Regulation 9 requires that where target values are exceeded the sources of emissions are identified and the measures required by regulation 7 are directed in particular at those sources.

These regulations are intended to transpose Article 3 of the Directive, which, as explained above, does not require measures entailing disproportionate costs or measures beyond the application of BAT. It is to be emphasised that the duties imposed by regulations 7 and 9 are placed on Northern Ireland Departments and the Department respectively. Therefore, these regulations do not directly place any new duty on industry unless the Department specifically does so. In complying with the requirement of these regulations, on the basis of the provisions of the Directive already outlined, the Department considers that there is already a sufficient legal framework imposed on industry, in particular the existing pollution prevention and control related duties, to comply with regulations 7 and 9 and the Directive. Key aspects of this existing framework are set out in Annex VI of this consultation. Therefore, the attainment of target values does not place additional regulatory burdens on industry stakeholders.

- Maintaining air quality where it complies with target values (**regulation 10**)
- Assessing air quality and deposition rates (**Chapter 4 of Part 2, and Part 3**)

In relation to target values, detailed requirements in relation to assessment of concentrations in ambient air are set out in Chapter 4 of Part 2 and must be followed within each zone (**regulation 12**). These include an obligation to assess by way of fixed measurement where concentrations exceed certain thresholds or allow the Secretary of State to combine, or replace, measurement with modelling techniques if certain conditions are met (**regulation 13**). Specific requirements are imposed in particular for fixed measurement, especially as regards the number and location of sampling points (**regulations 14 and 15**). There are also other assessment requirements, notably in relation to data quality objectives and assessment reference methods (**regulation 16**).

Further assessment obligations are set out in Part 3. These consist of the monitoring of polycyclic aromatic hydrocarbons other than benzo(a)pyrene (which is assessed under the above provisions) (**regulation 19**) and the monitoring, at background sampling points, of all pollutants to which the Directive applies, including mercury, in respect of both the concentration of those pollutants within ambient air and their deposition (**regulation 20**).

- Providing information to the public and relevant organisation (**Part 4**)

This Part requires the Department to provide up to date information on concentrations, and deposition, of each pollutant (**regulations 21 and 23**) as well as on any exceeding of the target values (**regulation 25**). In practice, Defra has made this information available on its website and intends to continue to do so.

3.4 Regulatory Impact Assessment

The Government has carried out a partial regulatory impact assessment (RIA) intended to identify and understand the implications of the proposals to transpose the fourth Daughter Directive which can be found at Section 4. The assessment of costs and benefits in this RIA *only* apply to the transposition of the Directive. The RIA does *not* apply to the proposals to consolidate existing legislation with the proposed new legislation, as these measures do not change the provisions of the existing legislation. The RIA applies to the whole of the UK.

3.5 Consultation Question

Dealing here only with the Fourth Daughter Directive, we would welcome views on whether, in practice, the transposition – as we intend – goes no further than the Directive and meets only the minimum requirements in the Directive, while covering all of the provisions in the Directives. Of course, if consultees consider that the Regulations do go either further than the Directives, or fall short in not giving effect to provisions, then it would be helpful to know in what respect.

The consultation question in relation to this aspect of the draft Regulations is:

Question 2: Do you consider that the draft Regulations in Annex II transpose the requirements of Directive 2004/107/EC without creating any new obligations or regulatory burdens except on the Department?

Section 4: Partial Regulatory Impact Assessment

Title of proposal

Implementation of Directive 2004/107/EC (Fourth Daughter Directive) relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air

Purpose and intended effect

Objective

The primary aim of this Directive is to reduce harmful effects on human health and the environment of airborne arsenic, cadmium, nickel and polycyclic aromatic hydrocarbons (PAHs), which are known carcinogens. This Directive is linked to the Air Quality Framework Directive (Directive 96/62/EC) which required the European Commission to come forward with proposals for regulating these pollutants.

The objectives of the Fourth Daughter Directive are as follows:

- (a) establish target values for the concentrations of arsenic, cadmium, nickel and benzo(a)pyrene in ambient air so as to avoid, prevent or reduce harmful effects of arsenic, cadmium, nickel and PAHs on human health and the environment as a whole;
- (b) ensure, with respect to arsenic, cadmium, nickel and PAHs, that ambient air quality is maintained where it is good and that it is improved in other cases;
- (c) determine common methods and criteria to assess concentrations of arsenic, cadmium, mercury, nickel and PAHs in ambient air as well as the deposition of arsenic, cadmium, mercury, nickel and PAHs;
- (d) ensure that adequate information on concentrations of arsenic, cadmium, mercury, nickel and PAHs in ambient air as well as on the deposition of arsenic, cadmium, mercury, nickel and PAHs is obtained and ensure that it is made available to the public.

The requirements of the Directive will be transposed into national legislation, by the Air Quality Standards Regulations (Northern Ireland) 2007 (see draft regulations in Annex II), in accordance with the Directive's requirements and timetables. The Directive applies to the whole of the UK.

Background

The existing Air Quality Framework Directive (96/62/EC) provides the framework for a series of Daughter Directives (1999/30/EC, 2000/69/EC, 2002/3/EC and 2004/107/EC), each setting specific air quality limit and threshold values for the pollutants sulphur dioxide, nitrogen dioxide, particulate matter, lead, ozone, benzene, and carbon monoxide; target values for PAHs, cadmium, and arsenic, nickel; and a requirement to monitor mercury.

The fourth Daughter Directive 2004/107/EC relates to arsenic, cadmium, mercury, nickel and PAHs (using benzo(a)pyrene as a marker) in ambient air. The Directive sets 'target values' from 31 December 2012 so as to avoid, prevent or reduce harmful effects on human health and the environment as a whole. These are outlined in Table 1 below.

Table 1 – Summary of target values and assessment thresholds

Pollutant	Limit values (ng/m³)¹	Upper assessment threshold in % of the target value²	Lower assessment threshold in % of the target value²
Arsenic	6	60% (3.6 ng/m ³)	40% (2.4 ng/m ³)
Cadmium	5	60% (3 ng/m ³)	40% (2 ng/m ³)
Nickel	20	70% (14 ng/m ³)	50% (10 ng/m ³)
Benzo(a)pyrene	1	60% (0.6 ng/m ³)	40% (0.4 ng/m ³)

Notes

¹ Applicable to the total content of the specified pollutant in the PM₁₀ fraction.

² Assessment thresholds will be considered as exceeded if concentrations have been exceeded during at least three calendar years out of the previous five years where sufficient data are available.

It is noted that the target values are not intended to be considered as 'Environmental Quality Standards' (EQSs) like the limit values in the other air quality Daughter Directives and as defined in Article 2(7) of Directive 96/61/EC. Target value requirements do not require any measures entailing disproportionate costs and under Article 3(3) industrial installations covered by the IPPC Directive are not mandated to go beyond the application of best available techniques (BAT).

Based on best current information available (both from the latest measurements (in 2005) of ambient concentrations and provisional modelling, via a dispersion model) the target value requirements, set out in the Directive, are not likely to require additional emission reduction measures beyond those implemented, under existing UK policy commitments and trends, taking into account that measures entailing disproportionate costs are not required under the Directive. Key existing policy commitments and trends include the Pollution Prevention and Control (PPC) system (including Local Air Pollution Prevention and Control) for industrial sources, Sulphur Content of Marine Fuels Directive for shipping sources, and fuel switching trends to gas away from solid fuels for domestic, commercial and industrial sources.

Target values are also used, however, as the basis of the requirement for Member States to assess levels of the specified pollutants throughout their territories. The Directive sets out two concentration thresholds in relation to this as proportions of the target values (which are also shown in Table 1 above). Measurement is mandatory in zones (as defined in Directive 96/62/EC) and agglomerations where levels exceed the 'upper' assessment threshold and where levels are between the 'upper' and the 'lower' assessment threshold, a combination of measurements and modelling techniques can be used.

The assessment of costs and benefits in the RIA is based on the best current available information. While there is a risk some exceedences of target value requirements may not be met by existing UK policy commitments or trends (such as the application of BAT under PPC regulations) – due to uncertainty in the current analysis and concentrations data – further assessments will be undertaken when better quality information becomes available. This risk is also discussed further in the Small Firms Impact Test below.

Rationale for government intervention

The implementation of the Directive would help ensure that adequate information is obtained on levels in ambient air of key pollutants that pose risks to human health (including carcinogenic risks) and the environment, and would demonstrate that health and environmental effects of these pollutants are reduced through meeting target value requirements, taking all necessary measures not entailing disproportionate costs.

Consultation

In addition to the current 12-week consultation, conducted in accordance with the Cabinet Office consultation code, industry, environmental groups and stakeholders were involved in the detailed preparation of the Fourth Daughter Directive – along with Member States – through the European Commission's Air Quality Steering Group and the sub-groups set up to provide reports on each of the pollutants. These groups played an important role in establishing the framework requirements and levels at which the Directive's target values have been set.

Options

The following options have been assessed in this RIA:

- **option 1: Do nothing** Under this option the UK would not do anything beyond existing policy commitments to meet its obligations under the Directive. As such no new monitoring will be undertaken (or additional new investments made). This risks triggering infraction proceedings and the UK would then be subject to substantial penalties.
- **option 2: Implement the Directive as currently proposed** Under this option the UK would implement the Directive as it currently stands, with the text of the Directive being transposed directly into the (proposed) Air Quality Standards Regulations (Northern Ireland) 2007. This would create mandatory requirements primarily relating to additional monitoring requirements as set out in the Directive. Target values are also set out by the Directive although these do not require additional measures to be implemented that entail disproportionate costs (for industrial installations this would not involve measures beyond the application of best available techniques (BAT) under the PPC regulations). Based on best current information available, target values are likely to be met under existing UK policy commitments and trends, and as a result no additional emission reduction measures are anticipated to be required, beyond those implemented under existing UK policy commitments. The Directive does not set specific obligations

for industry and therefore the regulations do not have any additional direct regulatory effect on industry.

Sectors and groups affected

To meet the requirements of this Directive, a relatively small number of sectors and groups are expected to be affected, as follows:

- Any sectors and groups that are involved with monitoring levels of relevant pollutants in ambient air and assessing compliance with the Directive will be affected, for instance providers of monitoring equipment, companies that maintain monitoring networks, and providers of environmental and analytical services.
- The UK government will be affected by the obligation to transpose the Directive into UK Regulations (draft regulations attached), assess levels of relevant pollutants (through purchase, operation and maintenance of monitoring equipment), and administer and report on the implementation of the Directive. The UK government will also bear the additional monitoring costs (both capital and annual operating costs) associated with this Directive.

Sectors emitting the relevant pollutants are unlikely to be affected by this Directive. A small number of additional installations which were not previously monitored will be monitored as a result of the thresholds and targets, however there will be no obligation on these companies or installations to spare resources to help the competent authority to carry out monitoring activities. In addition, the target value requirements, set out in the Directive, are unlikely to require additional emission reduction measures beyond those implemented in sectors emitting the relevant pollutants, under existing UK policy commitments and trends. As such, it is assumed that additional emission reduction measures would not be required beyond those implemented under existing policy commitments.

Benefits

The benefits have been assessed for each option separately.

Option 1: Do nothing

Under this option no action to implement the Directive will take place and therefore no benefits will be accrued.

Option 2: Implement the Directive as currently proposed

Benefits under this option can be broken down to the following:

- Health and environmental benefits – according to the best information available at the current time, the target values, set out by the Directive, are likely to be met under existing UK policy commitments and trends. As such, the concentrations of arsenic, cadmium, nickel and benzo(a)pyrene are not expected to change directly in response to implementation of this Directive.

However the enhanced level of information on ambient concentrations and deposition of the pollutants covered by this Directive is of potential benefit to a number of stakeholder groups. For example, such information could be used in decision making regarding location of future housing developments, location of existing populations, types of farming practices etc. and may lead to some indirect health and environmental benefits. This has been seen, for example, by the influence of NO_x and PM₁₀ ambient concentration data on the past planning decisions of some developments. These pollutants are subject to monitoring and control under the first Daughter Directive. Due to the high levels of uncertainty associated with the use of such information, and the subjective nature of the anticipated benefits, it is not possible to quantitatively estimate these benefits at this time.

- **Financial benefits** – There is potentially a positive impact on the businesses that manufacture, install and maintain the monitors required to assess pollutant levels. However, it is understood that there are very few UK based firms that produce such equipment and the main potential benefits to UK based firms will be restricted to the UK companies installing, operating and maintaining the monitors. Only a small number of additional monitors are expected to be required and therefore the financial benefits for a small number of UK firms, while positive, are anticipated to be limited.

Costs

The costs have been assessed for each option separately.

Option 1: Do nothing

Under this option, there would be no action required and hence no costs related to implementing any measures.

However, in the event that the UK is found to have failed to fulfil its obligations under the Directive, the matter may be brought before the European Court of Justice. This could lead to infraction proceedings against the UK.

Option 2: Implement the Directive as currently proposed

This option would incur costs for the setting up and operation of additional monitoring sites that would be required at various locations across the UK to meet the requirements of the Directive. The additional monitoring requirements expected as a result of the Directive are based on estimations by Defra and their monitoring contractors.

Where possible additional monitoring requirements will be met by utilising existing monitoring sites, in order to minimise costs. The management and running costs associated with operating and maintaining monitoring are also subject to a competitive bidding process.

Table 2 sets out the estimated capital and ongoing operating costs of additional monitoring sites anticipated to be required in order to meet the Directive, based on best current available data. There is uncertainty around

the number of additional sites required and also around estimated prices. As a result there is a risk additional monitoring costs (borne by government) may be higher than the current point estimate, should further additional sites be required and/or installation and equipment costs are higher. These uncertainties are, however, reflected as the range of costs presented below. Further analysis will be available shortly into B[a]P monitoring and more accurate price data will be available shortly.

Table 2 – Estimated costs to Government of additional monitoring required under the Directive¹

Option	England	Scotland	Wales	N. Ireland	UK
One off capital costs (£k)	310-920	100-310	70-210	50-160	500-1,600
Annual operating Costs (£k) ²	300-890	100-300	80-230	50-150	500-1,600
Total annualised cost (£k)³	340-1,000	110-330	85-250	60-170	600-1,800

Notes

¹ Note that these costs incorporate an assumed uncertainty of $\pm 50\%$, and are presented as rounded costs.

² Includes costs to government relating to the analysis of results from monitoring sites and demonstration that any measures undertaken to meet the target values have not entailed disproportionate costs, as required by the Directive.

³ Capital costs have been annualised (based on a discount rate of 3.5% and an assumed economic life of equipment of 10 years) and combined with annual operating costs.

The total costs associated with additional monitoring and demonstration of compliance are estimated to be in the region of £0.6 million to £1.8 million per year. These will be costs to Government.

As discussed previously the target value requirements set by the Directive are likely to be met under existing UK policy commitments and trends, based on best current information available. As such, it is assumed that additional emission reduction measures would not be required beyond those implemented under existing policy commitments and therefore no additional costs would fall on industry as a result of this Directive. In the event that further measures might be required, industry is not mandated to take measures that go beyond BAT.

In relation to the requirements for mercury monitoring, the UK does not need to acquire additional monitors beyond those already operational in the network. Therefore no additional costs need to be quantified in relation to this pollutant.

Small Firms Impact Test

It is not anticipated that the Directive will have a significant impact on small businesses as the key cost burden as a result of the mandatory requirements of the Directive in expanding the monitoring network will fall on Government. The best information available at the current time is that existing UK policy commitments will be sufficient to meet the target value requirements set out in the Directive and, as such, no additional beyond 'business as usual' activities

and investment are anticipated to occur for the key emission source sectors of interest to this Directive. Therefore potential impacts on small firms in these sectors in the UK are concluded to be insignificant. However should abatement equipment be needed there is a risk the cost of installing it may be disproportionate to small businesses. If this is the case such abatement measures would not take place as the Directive does not require any measures entailing disproportionate costs to be undertaken.¹⁴

The impact on small firms producing monitoring equipment in the UK is also concluded to be insignificant as is understood that the UK has very few air quality monitoring manufacturers and, the UK will be sourcing the equipment from international suppliers to monitor the pollutants in question for this Directive.

There is anticipated to be a small net benefit for UK firms that install, operate and maintain the additional monitors required by the Directive. The number of monitors is relatively small therefore the additional benefit for these companies is expected to form a small proportion of their total turnover and profit.

Competition assessment

The competition filter has been applied to the options considered in this RIA and it is not anticipated that the implementation of the proposed Directive will have any significant competitiveness impacts between UK and rest of EU markets and between the UK and rest of the world markets. As noted earlier, the best information available at the current time is that existing UK policy commitments will be sufficient to meet the target value requirements set out in the Directive. As such no impacts or requirements to change operations are anticipated to arise for the emission source sectors of interest to this Directive thus resulting in negligible or no competitiveness impacts for these sectors.

Any competitiveness impacts are only expected to be related to firms involved in the manufacture, supply, installation, operation and maintenance of monitoring equipment. There are very few UK based firms that manufacture air quality monitoring equipment and therefore a proportion of these potential benefits will be for overseas companies providing such equipment. A small net benefit for UK firms that install, operate and maintain the additional monitors is anticipated, although the number of additional monitors is relatively small and likely to form a small element of the turnover and operating profits of the relevant companies. The management and running costs associated with operating and maintaining monitoring are also subject to a competitive bidding process. As installation and operation of the air quality networks is assumed to be completed domestically by Member States it is not considered likely that this Directive creates additional opportunities for UK companies internationally. For these reasons no significant competitiveness impacts are expected for UK firms in this sector.

¹⁴ Article 3(3) of Directive 2004/107/EC.

Enforcement, sanctions and monitoring

The Department of the Environment will assess compliance with the proposed regulations, target values and obligations in Directive 2004/107/EC, through the UK's national monitoring network and system of Local Air Quality Management provided by the Environment (Northern Ireland) Order 2002.

The European Commission will review progress on implementing Directive 2004/107/EC in light of scientific progress and emerging evidence on health effects.

Summary

Table 3 below summarises the costs and benefits of the options presented in this RIA.

Table 3 – Summary of costs and benefits for the proposed options

	Total benefits	Total costs
Option 1 – Do nothing	-	£8 – 55m lump sum cost (£3 – 200m per annum thereafter) ¹
Option 2 – Implement Directive as proposed	Small benefits; not monetised	£0.6 – 1.8m per annum ²

Notes

¹ Cost of possible infraction proceedings and of not complying with the Directive.

² Annualised additional costs of monitoring – including both one-off capital costs and ongoing annual operating costs.

Target value requirements, set out by the Directive, are likely to be met under existing UK policy commitments and trends, based on best current information available. As such, it is assumed that additional emission reduction measures would not be required beyond those implemented under existing policy commitments and therefore no costs would fall on industry as a result of this Directive.

Annex I: Current Regulatory Controls

The draft Regulations do *not* intend to produce any new legislation for controls on the substances listed in the fourth Daughter Directive. You might however be interested to know that in the UK, as in the rest of the EC, there are some policies in place that control the sources of heavy metal emissions. A few of these are highlighted in the table below.

The Pollution Control and Local Government (Northern Ireland) Order 1978.	Existing processes involving cadmium or mercury are covered by Pollution of the Atmosphere under Part IV of the Pollution Control and Local Government (Northern Ireland) Order 1978.
The Pollution Prevention and Control Regulations (Northern Ireland) 2003 (SR 2003 No.46) made under Article 4 of the Environment (Northern Ireland) Order 2002 implement Directive 96/61/EC on Integrated Pollution Prevention and Control (IPPC).	These Regulations also control emissions of metals and their compounds to air from other activities, not covered by the IPPC Directive but which were previously regulated under Integrated Pollution Control (IPC) and Local Air Pollution Control (LAPC). One such activity is crematoria a recognised source of mercury emissions to air.
IPPC Directive 96/61/EC	New and substantially changed processes are covered by the PPC Regulations which implement the Integrated Pollution Prevention and Control (IPPC) Directive 96/61/EC. Existing processes under IPC and LAPC will transfer to IPPC in a phased programme by 2007. IPPC requires the application of Best Available Techniques (BAT) (the definition includes economic and technical viability) for various sectors which emit heavy metals such as, iron & steel, non ferrous metals, combustion processes, petroleum, cement and glass sectors.
Revised Large Combustion Plant Directive 2001/80/EC	The revised Large Combustion Plant Directive (LCPD) is likely to have significant impact on heavy metal emissions. The Directive sets emission limit values (elvs) for dust (PM ₁₀) for existing (pre July 1987) and new (post July 1987) plant.
Waste Incineration Directive 2000/76/EC	The aim of the Waste Incinerator Directive (WID), which is implemented via the Pollution

	<p>Prevention and Control Regulations that regulate emissions from Industrial sources, is to prevent or limit, as far as practicable, negative effects on the environment, in particular pollution by emissions into air, soil, surface and groundwater, and the resulting risks to human health, from the incineration and co-incineration of waste. The WID seeks to achieve this high level of environmental and human health protection by requiring the setting and maintaining of stringent operational conditions, technical requirements and emission limit values, such as heavy metals and PAHs, for plants incinerating and co-incinerating waste throughout the European Community</p>
Water Framework Directive 2000/60/EC	<p>Discharges, emissions and losses of cadmium and mercury will be regulated under the Water Framework Directive (2000/60/EC). This was adopted in December 2000 and when implemented in the UK will supersede other Directives, including the Groundwater Directive (80/68/EEC) and the Dangerous Substances Directive (76/464/EEC).</p>
EU Directive 91/338EEC	<p>Restricts the use of cadmium in pigments and products coloured with cadmium, in paints, as a stabiliser, and for the plating of metal products. There are exemptions for the use of cadmium plating applications within, for example, the aeronautical and aerospace sectors.</p>
Directive 91/157EEC	<p>Stipulates that batteries containing more than 0.025% cadmium can be installed only in situations where they can easily be removed and separately collected. Member States are also required to provide accompanying consumer information and programmes for the removal, collection and transportation for re-use of such batteries; it is prohibited to obstruct the circulation of batteries which comply with the guidelines.</p>

Directive 83/513	Sets a limit of 0.2mg/litre for cadmium in water from a variety of industrial processes, whilst Directive 86/278 limits the cadmium content of soil and sludge used in agriculture (1-3mg/kg dry matter and 20-40mg/kg dry matter respectively).
Directive 84/500	Sets limits of between 0.07mg/dm ² to 0.3mg/litre of cadmium for leakage from ceramic objects which come into contact with food.
Directive 88/378/EC	Stipulates a mandatory maximum bioavailability level for cadmium per day of 0.6µg, this takes precedence in the use of cadmium pigment for toys.
Directive 91/88/EC,	Amending 79/117EEC, phases out mercury in seed dressings.
Directive 82/176EEC	defines the limit values and quality objectives for mercury discharges from the chlor-alkali industry.
Directive 84/156EEC	defines limit values and quality objectives for mercury emissions to water from other industrial plants.
Directive 89/369	sets limits on mercury emissions from new municipal waste incinerators to 0.2mg Cd+Hg/m ³ .
Directive 89/677	bans mercury in anti-fouling paints, wood preservatives, heavyduty industrial textiles and yarn and in the treatment of industrial waters.
The Paris Commission on the 1992 Convention for the environmental protection of the Northeast Atlantic. has agreed a number of actions to reduce mercury emissions to the marine environment. Under the 3rd North Sea Conference, the UK undertook to reduce mercury discharges by 70% or more by 2001, provided that BAT could produce such a reduction. Chlor-alkali plants using the amalgam mercury process will also be phased out.	

