

A1.1 Introduction

A1.1.1 Overview of the Risk Assessment Method

This risk assessment method is intended for use by local authorities in determining the relative level of risk associated with processes regulated under the Local Air Pollution Control regime. The method assigns a level of proposed 'regulatory effort' to individual processes (high, medium or low) according to their relative risks. The method relates to effort expended in regulating processes once they have been authorised (i.e. what is covered by the *subsistence* element of the LAPC fees and charges).

Risk assessment using this method is based upon both the nature of the process and the way in which it is managed; it is divided into two parts:

1. **Environmental Impact Appraisal (EIA)**, which concerns the potential environmental impacts of a process according to its type, level of upgrading to meet regulatory requirements, and its location.
2. **Operator Performance Appraisal (OPA)**, which relates to how well the operator manages the potential environmental impact of the process.

Each of these aspects is evaluated by scoring the process against a number of different components. These components are listed below, together with guidance on how they should be applied and their implications for regulatory planning. Where a component is not relevant, a score of zero should be awarded. An example score sheet is provided to record the scores for each process¹.

Under the LAPC regime, small waste oil burners (PG1/1) and unloading of petrol at service stations (PG1/14) are recognised to require significantly less regulatory effort than other processes. This is due to the relative simplicity of these processes and because specimen applications and authorisations are provided for authorities. DEFRA already categorises these processes in a lower charging band and also expects that the frequency of inspection should be less than for other processes. Therefore, the method should not be applied to these two process types.

A1.1.2 Use of the Risk Assessment Method

Set out below is the proposed approach that local authorities should take in applying the risk assessment method and utilising the results in determining regulatory effort.

Step 1 Desk-based scoring of processes. All of the Part B processes under an authority's control should be scored using the risk assessment method, based on information held on file, together with officers' knowledge of the processes concerned. The output will be a series of scores for different attributes and allocation of the process to a risk category, which is linked to the regulatory effort required by the process.

¹ Each of the possible scoring options is given a unique scoring identifier. Thus, a process falling into risk rating 'category 2' under component 1 and with highly sensitive receptors less than 100m away can be identified as 1-B, 3-A-x.

Step 2 Use the score sheets during visits to selected processes. Where scheduled visits to processes are undertaken, the scoring should be used as a basis for discussion with operators. Where possible, a copy of the methodology and draft completed score sheet should be provided to the operator prior to the visit. The completed score sheet should be shown to the operator and the scores discussed with them, together with any action that could be taken to reduce their scores and risk category. It is envisaged that this should not add significantly to the length of the visit but should provide a focus for discussion.

Step 3 Use the scoring to determine regulatory effort. Section A1.4 provides guidance on how the results of the risk assessment method should normally be used in determining the level of resources to be devoted to the subsistence activities of processes.

Step 4 Review scores on a regular basis. Scores for each process should be reviewed on a regular basis, and at least annually. In particular, scores should be reviewed following visits, any changes to the authorisation, receipt of complaints or when enforcement action is taken.

In cases where an operator carries out activities requiring more than one authorisation at any given location, a separate assessment should be carried out for each authorisation. However, where a single authorisation covers more than one process type (Process Guidance Note), only one assessment is required.

A1.2 Environmental Impact Appraisal

A1.2.1 Component 1: Inherent Environmental Impact Potential of Process

This component of the methodology reflects the fact that certain *process types* have inherently greater potential environmental impacts than others and may thus require greater regulatory effort.

The Advisory Panel on Risk Ranking (APRR) has rated the various processes, as defined by the relevant PG Note(s), into three categories according to their inherent environmental impact potential. The rating is provided in the Appendix to this Annex.

Where more than one PG Note is used in deriving a single authorisation, authorities should base the assessment on the PG Note that is the main one used for the purposes of determining BAT/BATNEEC for the process. However, where there are combined processes as provided for in the rules in Schedule 2 of the Environmental Protection (Prescribed Processes and Substances) Regulations, the PG Note with the highest risk rating should be used.

Risk Rating	Score Awarded
(A) Category 1	10
(B) Category 2	20
(C) Category 3	30

A1.2.2 Component 2: Progress with Upgrading

This component of the methodology assesses the extent to which a process has been upgraded to comply with the BATNEEC requirements set out in the process's authorisation. Not only may processes that have not completed upgrading pose a greater potential risk; they are also likely to require more regulatory effort in monitoring progress with the upgrading. Conversely, processes that exceed current BATNEEC requirements will pose reduced risks and may require less regulatory effort.

There are four possible classifications for scoring of processes:

- upgrading to meet the requirements of the authorisation is not yet complete, due to the Guidance Note deadline not yet having been reached;
- upgrading is not yet complete for other reasons, such as variations to the process and the Guidance Note deadline has passed;
- upgrading is complete and the process meets all of the current applicable BATNEEC requirements; or
- emissions control not only meets current BATNEEC requirements but goes beyond those requirements, resulting in lower emissions (for example, where improved emissions arrestment plant has been adopted voluntarily in plant already meeting BATNEEC requirements or where Process Guidance Note requirements are met over a year before the due date).

The nature and extent of upgrading required, or the degree to which BATNEEC is exceeded, may vary considerably amongst processes. However, to ensure objectivity and consistency, the same scores should be awarded on regardless of the magnitude these factors. Past failure to complete upgrading within the required time should not be included in this Component.

Table A1.2: Scoring for Component 2 - Progress with Upgrading	
Status of Upgrading	Score
(A) Upgrading not complete but PG Note deadline has yet to be reached	5
(B) Upgrading not yet complete and PG Note deadline has passed	10
(C) Upgrading complete and meets BATNEEC Requirements	0
(D) Emissions control exceeds BATNEEC Requirements	-10

A1.2.3 Component 3: Sensitivity and Proximity of Receptors

This component assesses the extent to which any ‘receptors’ in the vicinity of a process could be impacted by emissions from the process. This will be determined by the sensitivity of the receptors in question (their number or the particular importance attached to them) and also by their proximity to the process. This component is not intended to reflect the nuisance potential of a process, and thus the potential for complaints (this is included under the ‘Compliance Assessment’ component below), but rather the potential for *physical* harm to the receptors in question.

The sensitivity of receptors is classified as high, medium or low:

- **high** - schools, residential areas, hospitals, designated environmental areas (e.g. SSSIs);
- **medium** - offices, isolated residences, major roads, footpaths/cycle paths, agricultural land; and
- **low** - public open space, minor roads, industrial areas, car parks, derelict land.

The distances used to determine proximity are based upon the distances up to which statutory consultation is required where SSSIs are near to Part B processes (based on General Guidance Note GG3). Whilst in practice the distances at which different receptors are affected will vary according to the receptor and the pollutant in question, these standard distances are used in order to assure simplicity and consistency in application of the method.

Scores are awarded according to a combination of the sensitivity of receptors and their proximity to the emission source. The highest possible score is awarded, which may not necessarily be the score for the most sensitive receptor. For example, where there is a high sensitivity receptor 300m away and a medium sensitivity receptor 150m away, the respective scores are 5 and 10 and the latter is the score awarded.

Table A1.3: Scoring for Component 3 - Sensitivity and Proximity of Receptors			
Proximity to Emission Source	Sensitivity of Receptors		
	(x) High	(y) Medium	(z) Low
(A) < 100m*	20	12	5
(B) 100 - 250m*	12	10	3
(C) 250 - 500m*	5	3	1
(D) >500m*	0	0	0

* All distances should be multiplied by a factor of 2 for mineral and cement & lime processes and by a factor of 4 for combustion, incineration (not cremation), iron & steel and non-ferrous metal processes.
 Note: Distances should be measured from the process itself, rather than the site boundary.

A1.2.4 Component 4: Other Targets

An additional 10 points should be scored if there are particular air pollution problems in the local area to which the process is a potential contributor; for example, where an Air Quality Management Area has been established for a pollutant that is emitted from the process in question.

Table A1.4: Scoring for Component 4 - Other Targets	
	Score
(A) Other air pollution problems in the local area to which process is a potential contributor	10
(B) No such air pollution problems	0

A1.3 Operator Performance Appraisal

A1.3.1 Component 5: Compliance Assessment

This section relates to any incidence of non-compliance that has occurred in the twelve months immediately preceding the assessment or review of the assessment. Compliance is assessed in terms of individual incidents; a single incident that led to a number of justified complaints should be scored as being one incident. For each incident, a score is awarded according to the level of regulatory action required². If there has been no non-compliance, a score of zero is awarded.

For example, a hypothetical cement process received three justified complaints on three separate occasions around eight months ago from local residents. The emissions leading to the justified complaints were caused by repeated failures of a bag filter, which was remedied by the operator replacing the filter bags. The process also received an enforcement notice nine months ago in relation to a failure to record emissions in the log book. The score would be 15 points for the justified complaints and 15 points for the enforcement notice, giving a total of 30 points.

- The maximum possible score is 50 points; for example, a score of 50 points will be awarded even where there have been more than ten incidents leading to justified complaints. This is to ensure that scores for non-compliance do not distort the overall scores.
- Only air pollution related incidents should be included under this component (i.e. general nuisance or noise related incidents are not covered).
- All incidents that have occurred within the twelve months immediately preceding the assessment or review of the assessment should be included.
- Where a justified complaint has been received but no incident leading to non-compliance has occurred, no score should be awarded. The process operator should not be penalised under this component if they are in compliance with the authorisation and the general/residual BATNEEC condition.

Table A1.5: Scoring for Component 5 - Compliance Assessment	
Scale of Non-Compliance	Score
(A) Incident leading to justified complaint but no breach of any specific authorisation condition or of the general/residual BATNEEC condition	0 points
(B) Incident leading to a justified complaint*	5 per incident
(C) Breach of authorisation not leading to formal action	10 per incident
(D) Incident leading to formal caution, Enforcement Notice or prosecution	15 per incident
(E) Incident leading to a Prohibition Notice	20 per incident
Total	(Max. 50)
* <i>Unjustified complaints may be e.g. those considered by the inspector to be unreasonable or which cannot be clearly linked to an incident at the process.</i>	

² For administrative purposes, processes may be identified using the number of incidents under each category. For example, a process having two incidents leading to a justified complaint and one leading to a formal caution would be identified as 5-B2,D1.

A1.3.2 Component 6: Monitoring, Maintenance and Records

This component concerns the monitoring activity required to be undertaken by the process operator, the maintenance programme for pollution control equipment (as specified in the authorisation), and the record keeping undertaken by the operator

Where any of the elements is not applicable, a score of zero should be awarded. Where the authority has chosen to undertake monitoring itself, operators should not be awarded an adverse score (unless they have failed to meet **their own** obligations).

Criterion	Score		
	(x) Yes	(y) No	(z) N/A
(A) All monitoring undertaken to the degree required in the authorisation? ¹	0	10	0
(B) Monitoring requirements reduced because results over time show consistent compliance?	-5	0	0
(C) Process operation modified where any problems indicated by monitoring?	0	5	0
(D) Fully documented and adhered to maintenance programme, in line with authorisation?	0	5	0
(E) Full documented records as required in authorisation available on-site?	0	5	0
(F) All relevant documents forwarded to the authority by date required? ¹	0	5	0
Total score	(-5 to 30)		
¹ <i>These aspects relate to the operator's performance within the <u>twelve months</u> immediately preceding the assessment or review of the assessment. Failure to monitor to the degree required or to forward documents on time more than twelve months ago should be excluded.</i>			

A1.3.3 Component 7: Management, Training and Responsibility

This component assesses whether documented procedures for implementing all aspects of the authorisation are in place, with responsibility allocated to particular staff members. The extent of documentation may vary, particularly for smaller processes.

Additional points are awarded where an ‘appropriate’ environmental management system is in place. Guidance on what constitutes an ‘appropriate’ management system is given below.

Interpretation of ‘appropriate’ management systems

“It is ... desirable that processes put in place some form of structured environmental management approach, whether by adopting published standards (ISO 14001 or the EU Eco Management and Audit Scheme [EMAS]) or by setting up an environmental management system (EMS) tailored to the nature and size of the particular process. Process operators may also find that EMS will help identify business savings.

Local enforcing authorities should use their discretion, in consultation with individual process operators, in agreeing the appropriate level of environmental management. Simple systems which ensure that LAPC considerations are taken account of in the day-to-day running of a process may well suffice, especially for small and medium-sized enterprises. While authorities may wish to encourage wider adoption of EMS, it is outside the legal scope of an LAPC authorisation/LAPPC permit to require an EMS for purposes other than LAPC/LAPPC compliance.”

Source: Process Guidance Note Draft PG3/8(2001) - Quarry Processes. 02/11/2001. DEFRA website (www.defra.gov.uk). (The full text included in the proposed amendments to the PG Notes is included in Annex 6 to this report).

Table A1.7: Scoring for Component 7 - Assessment of Management, Training and Responsibility			
Criterion	Score		
	(x) Yes	(y) No	(z) N/A
(A) Documented procedures in place for implementing all aspects of the authorisation?	0	5	0
(B) Specific responsibilities assigned to individual staff for these procedures?	0	5	0
(C) Completion of individual responsibilities checked and recorded by the company?	0	5	0
(D) Documented training records for all staff with air pollution control responsibilities?	0	5	0
(E) Trained staff on site throughout periods where potentially air-polluting activities take place?	0	5	0
(F) Is an ‘appropriate’ environmental management system in place?	-5	0	0
Total	(-5 to 25)		
<p><i>Note: In relation to the last criterion, when the relevant PG Note has been updated to include guidance on ‘appropriate’ management systems, processes should be scored zero (0) if such a system is in place and five (+5) if such a system is not in place. DEFRA and NAW envisage that guidance on appropriate management systems be standard in all of the next generation PG Notes (these will have effect by the end of 12 months from the date of publication of the relevant PG Note).</i></p>			

A1.4 Overall Scoring and Determining Regulatory Effort

A1.4.1 Overall Scoring

The overall score for a process is obtained by summing the scores for each component. The table below summarises the maximum possible scores under each of the components. The total maximum score is 175.

Table A1.8: Overall Maximum Scores		
Assessment Component	Minimum Score	Maximum Score
<i>Environmental Impact Appraisal</i>		
1. Inherent Environmental Impact Potential of Process	10	30
2. Progress with Upgrading	-10	10
3. Sensitivity and Proximity of Receptors	0	20
4. Other Targets	0	10
<i>Operator Performance Appraisal</i>		
5. Compliance Assessment	0	50
6. Monitoring, Maintenance and Records	-5	30
7. Management, Training and Responsibility	-5	25
Total	-10	175

A1.4.2 Determining the Level of Regulatory Effort

The result of the risk assessment can then be used to determine the appropriate level of 'regulatory effort' to be devoted to the *subsistence* aspects of a process. The total score awarded places the process in one of three *regulatory effort categories*, as follows:

1. A process scoring less than 40 points is categorised as 'Low'.
2. A process scoring between 40 and 80 is 'Medium'.
3. One scoring over 80 points is 'High'.

The table below gives an indication of the amount of regulatory effort that could be devoted to the process in question, depending upon the regulatory effort category.

Table A1.9: Determination of Regulatory Effort from Scores		
Overall Score	Regulatory Effort	
	Category	Hours per Year*
Less than 40	Low	9 to 15
40 to 80	Medium	18 to 30
Over 80	High	27 to 45

** Estimated average regulatory time per process varies from 18 to 30 hours per year*

Regulatory effort refers to the time taken to regulate a process that is dependent upon the process characteristics. This includes both time spent on inspections and time spent at the office preparing for inspections, writing reports and reviewing data supplied by operators. The average regulatory time spent per process varies from 18 to 30 hours per year.

Where a process requires ‘high’ regulatory effort, this may imply longer and/or more frequent visits; for example visits twice a year rather than annually. Where ‘low’ regulatory effort is required, this may imply shorter and/or less frequent visits. Inspectors will need to judge for each process how the estimated regulatory time can best be spent to maximise the efficiency of regulation. Note that it is not intended that application of the risk-based method should lead to a significant reduction in overall regulatory effort; rather effort should be prioritised towards those processes posing the greatest risk of environmental pollution.

Appendix: Classification of Processes by Advisory Panel on Risk Ranking (APRR)

Table A1.10, below, provides a ranking of processes based on their inherent environmental impact potential. Process categories are placed in one of the following three categories, taking into account potential for contained and/or fugitive emissions, for health impacts, for environmental impacts and potential for ‘offensiveness’ impacts:

Category 1 Processes with an inherent environmental impact potential that was lower/below average when compared with other Part B processes.

Category 2 Processes with an inherent environmental impact potential that was medium/average when compared with other Part B processes.

Category 3 Processes with an inherent environmental impact potential that was higher/above average when compared with other Part B processes.

Table A1.10: Risk Rating of LAPC Processes According to APRR	
Process guidance note	Category
PG1/1(95)-waste oil burners, <0.4MW	1
PG1/2(95)- waste recovered oil burners, less than 3MW	2
PG1/3(95)-boilers and furnaces, 20-50MW	1 - gas fed 2 - other fuel
PG1/4(95)-gas turbines, 20-50MW	1
PG1/5(95)-compression ignition engines, 20-50MW	1
PG1/10(92)-waste derived fuel combustion <3MW	3
PG1/11(96)-reheat, heat treatment furnaces, 20-50MW	2
PG1/12(95)-combustion of solid waste 0.4 to 3MW	3 - WID 2 - non-WID
PG1/13(96) storage, loading, unloading petrol at terminals	3
PG1/14(96)-unloading petrol into storage at service stations	1
PG1/15(97)-odorising natural gas, liquefied petroleum gas	1
PG2/1(96)-furnaces to extract non-ferrous metal from scrap	3
PG2/2(96)-hot dip galvanising	2
PG2/3(96)-electrical and rotary furnaces	Reverberatory/Rotary - 3 Gas/electric fed - 1* Crucible oil fed - 2 Crucible gas fed - 1
PG2/4(96)-iron, steel, non-ferrous metal foundry processes	3 - core making, chemically bonded moulds, thermally reclaimed sand 2* - all other processes
PG2/5(96)-hot and cold blast cupolas	3
PG2/6(96)-aluminium and aluminium alloy processes	2 - ingots and in house clean scrap used 3 - other scrap used

Table A1.10: Risk Rating of LAPC Processes According to APRR	
Process guidance note	Category
PG2/7(96)-zinc and zinc alloy processes	2 - ingots and in house clean scrap used 3 - other scrap used
PG2/8(96)-copper and copper alloy processes	2 - ingots and in house clean scrap used 3 - other scrap used
PG2/9(96)-metal decontamination processes	3
PG3/1(95)-blending, packing, loading and use of bulk cement	1
PG3/2(95)-manufacture of heavy clay and refractory goods	3
PG3/3(95)-glass (exc. lead glass) manufacturing processes	3
PG3/4(95)-lead glass manufacturing processes	3
PG3/5(95)-coal, coke, coal product and petroleum coke	1 - Bagging plant 2 - all others processes
PG3/6(95)-polishing, etching of glass etc using HF acid	3
PG3/7(95)-exfoliation of vermiculite and expansion of perlite	1
PG3/8(96)-quarry processes	1*
PG3/12(95)-plaster processes	1
PG3/13(95)-asbestos processes	3
PG3/14(95)-lime processes	1
PG3/15(96)(a)- roadstone coating	3 - WID 2 - non-WID/non gas fed 1 - gas fed
PG3/15(96)(b)-mineral drying	2 - non gas fed 1 - gas fed
PG3/16(96)-mobile crushing and screening	1
PG3/17(95)-china and ball clay +spray drying of ceramics	1 - spray dryers 2 - Ball/China clay processes
PG4/1(95)o- surface treatment of metals	2
PG4/2(96)o- manufacture of fibre reinforced plastics	3
PG5/1(95)-clinical waste incineration < 1 tonne/hour	3
PG5/2(95)- crematoria	3
PG5/3(95)-animal carcass incineration < 1 tonne an hour	3
PG5/4(95)-general waste incineration < 1 tonne an hour	3
PG5/5(91)-sewage sludge incineration < 1 tonne an hour	3
PG6/1(00)-processing of animal remains and byproducts	3
PG6/2(95)-manufacture of timber and wood-based products	1
PG6/3(97)-chemical treatment, timber, wood-based products	1
PG6/4(95)- manufacture of particleboard and fibreboard	3
PG6/5(95)-maggot breeding	3
PG6/7(97)-printing and coating of metal packaging	2

Table A1.10: Risk Rating of LAPC Processes According to APRR	
Process guidance note	Category
PG6/8(97)-textile and fabric coating and finishing	2
PG6/9(96)-manufacture of coating powder	2
PG6/10(97)-coating manufacturing	1 or 2#
PG6/11(97)-manufacture of printing ink	1 or 2#
PG6/12(91)-production of natural sausage casings, tripe, etc	2
PG6/13(97)-coil coating	2
PG6/14(97)-film coating	2
PG6/15(97)-coating in drum manufacture and reconditioning	2
PG6/16(97)-printworks	2*
PG6/17(97)-printing of flexible packaging	2
PG6/18(97)-paper coating	2
PG6/19(97)-fish meal and fish oil	3
PG6/20(97)-paint application in vehicle manufacturing	2
PG6/21(96)-hide and skin	2
PG6/22(97)-leather finishing	2
PG6/23(97)-coating of metal and plastic	2
PG6/24(96)-pet food manufacturing	2 - cooking involved in process 1 - no cooking involved in process
PG6/25(97)-vegetable oil extraction, fat and oil refining	2 - vegetable oil processes 3 - heat refining processes
PG6/26(96)-animal feed compounding	2
PG6/27(96)-vegetable matter drying	2
PG6/28(97)-rubber	3 - carbon black used in process 2 - all others processes
PG6/29(97)-di-isocyanate	3
PG6/30(97)-production of compost for mushrooms	2
PG6/31(96)-powder coating (including sheradizing)	1
PG6/32(97)-adhesive coating	2
PG6/33(97)-wood coating	2
PG6/34(97)-respraying of road vehicles	1*
PG6/35(96)-metal and other thermal spraying	2
PG6/36(97)-tobacco processing	2
PG6/40(94)-coating, recoating of aircraft and components	2
PG6/41(94)o-coating and recoating of rail vehicles	2
PG6/42(94)o-bitumen and tar	3 - coal tar, oxidised bitumen and cutback bitumen processes 1 - asphalt processes

Table A1.10: Risk Rating of LAPC Processes According to APRR

Process guidance note	Category
IPR 4/17 Chemical storage	3
<i>WID - Process will come under the Waste Incineration Directive</i> <i>Non WID - Process will not come under the Waste Incineration Directive</i> <i>* - Where a particular process is large for the sector and, in the judgement of the EHO, this has significant impacts for risk, the ranking should be increased by one category.</i> <i># - local authorities to decide for themselves which category.</i>	