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# Process Guidance Note 3/08(12)

## Statutory guidance for quarry processes

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Llywodraeth Cymru
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# Revision of the guidance

The electronic version of this publication is updated from time to time with new or amended guidance. **Table 0.1** is an index to the latest changes (minor amendments are generally not listed).

| Table 0.1 - Revision of the guidance | | |
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# 1. Introduction

## Legal basis

1.1 This note applies to the whole of the UK. It is issued by the Secretary of State, the Welsh Assembly Government, the Scottish Government and the Department of the Environment in Northern Ireland (DoENI), to give guidance on the conditions appropriate for the control of emissions into the air from Quarry Processes. It is published only in electronic form and can be found on the Defra, DoENI, SEPA and WAG websites. It supersedes PG3/08(04).

1.2 This guidance document is compliant with the Code of Practice on Guidance on Regulation page 6 of which contains the "golden rules of good guidance". If you feel this guidance breaches the code or you notice any inaccuracies within the guidance, please contact us.

1.3 This is one of a series of statutory notes[1] giving guidance on the Best Available Techniques (BAT)[2]. The notes are all aimed at providing a strong framework for consistent and transparent regulation of installations regulated under the statutory Local Air Pollution Prevention and Control (LAPPC) regime in England and Wales, Scotland and Northern Ireland. The note will be treated as one of the material considerations when determining any appeals against a decision made under this legislation.

1.4 In general terms, what is BAT for one installation in a sector is likely to be BAT for a comparable installation. Consistency is important where circumstances are the same. However, in each case it is, in practice, for regulators (subject to appeal) to decide what is BAT for each individual installation, taking into account variable factors such as the configuration, size and other individual characteristics of the installation, as well as the locality (e.g. proximity to particularly sensitive receptors).

1.5 The note also, where appropriate, gives details of any mandatory requirements affecting air emissions which are in force at the time of publication, such as those contained in Regulations or in Directions from the Government. In the case of this note, at the time of publication there were no such mandatory requirements.

[1] this and other notes in the series are issued as statutory guidance in England and Wales under regulation 64(2) of the Environmental Permitting Regulations. The notes are also issued as statutory guidance in Northern Ireland and guidance in Scotland.
[2] further guidance on the meaning of BAT can be found for England and Wales, Scotland, and Northern Ireland.

## Simplified or standard permits

1.6 Most of the activities covered by this note will have essentially the same characteristics and it is expected that the application form and model permit in **Appendices 1 and 2** will normally be used in order to simplify for business the process of applying for a permit and to simplify for regulators the process of issuing a permit. (See also the LAPPC charging scheme for reduced application and subsistence charges for simplified permits).

If there are good reasons to consider diverging from normal use of the model permit, the starting point for drafting any additional conditions should be the arrowed bullets in the main body of this note.

In the case of activities covered by this note which are mobile plant or which are likely to process more than 100,000 tonnes of material in any 12-month period, it is expected that regulators will continue to use standard applications and permits.

Sites with more than one Pt B activity (Part C in Northern Ireland) which in accordance with the relevant charging scheme are to be treated as a single activity will require a full permit not a simplified permit, therefore the whole installation comprising both activities should be subject to a full permit.

1.7 For activities covered by this note which are mobile plant or which are likely to process more than 100,000 tonnes of material in any 12-month period, in **Section 4** and **Section 5**, arrows are used to indicate the matters which should be considered for inclusion as standard permit conditions. It is important to note, however, that this should not be taken as a short cut for regulators to a proper determination of BAT or to disregard the explanatory material which accompanies the arrows. In individual cases it may be justified to:

- include additional conditions;
- include different conditions;
- not include conditions relating to some of the matters indicated.

In addition, conditions will need to be derived from other parts of the note, in particular to specify emission limits, compliance deadlines and mandatory requirements arising from directions or other legislation.

## Who is the guidance for?

1.8 This guidance is for:

**Regulators**

- local authorities in England and Wales, who must have regard to the guidance when determining applications for permits and reviewing extant permits;

- the Scottish Environment Protection Agency (SEPA) in Scotland, and district councils or the Northern Ireland Environment Agency, (NIEA), in Northern Ireland.

**Operators** who are best advised also to have regard to it when making applications and in the subsequent operation of their installation.

**Members of the public** who may be interested to know what the Government considers, in accordance with the legislation, amounts to appropriate conditions for controlling air emissions for the generality of installations in this particular industry sector.

## Updating the guidance

1.9 The guidance is based on the state of knowledge and understanding, at the time of writing, of what constitutes BAT for this sector. The note may be amended from time to time to keep up with developments in BAT, including improvements in techniques, changes to the economic parameters, and new understanding of environmental impacts and risks. The updated version will replace the previous version on the Defra website and will include an index to the amendments.

1.10 Reasonable steps will be taken to keep the guidance up-to-date to ensure that those who need to know about changes to the guidance are informed of any published revisions. However, because there can be rapid changes to matters referred to in the guidance – for example to legislation – it should not be assumed that the most recent version of this note reflects the very latest legal requirements; these requirements apply.

## Consultation

1.11 This note has been produced in consultation with relevant trade bodies, representatives of regulators including members of the Industrial Pollution Liaison Committee, and other potentially-interested organisations.

## Policy and procedures

1.12 General guidance explaining LAPPC and setting out the policy and procedures is contained in separate documents for England and Wales, Scotland and Northern Ireland.

# 2. Timetable for compliance and reviews

## Existing processes or activities

2.1 This note contains all the provisions from previous editions which have not been amended or removed. For installations in operation at the date this note is published, the regulator should have already issued or varied the permit having regard to the previous editions. If they have not done so, this should now be done.

2.2 The new provisions of this note and the dates by which compliance with these provisions is expected are listed in **Table 2.1** together with the paragraph number where the provision is to be found. Compliance with the new provisions should normally be achieved by the dates shown. Permits should be varied as necessary, having regard to the changes and the timetable.

**Table 2.1 - Compliance timetable**

| Guidance | Relevant paragraph/row in this note | Compliance date |
|---|---|---|
| | | |
| There are no new provisions in this note likely of themselves to result in a need to vary existing permit conditions. For a full list of changes made by this note, excluding very minor ones, see Table 6.1. | | |

2.3 Replacement plant should normally be designed to meet the appropriate standards specified for new installations/activities.

2.4 Where provisions in the preceding guidance note have been deleted or relaxed, permits should be varied as necessary as soon as reasonably practicable. It is expected that local authorities will aim to vary existing permits so as to convert them into the model permit format in **Appendix 2** within 12 months of the publication of this note.

2.5 For new activities, the permit should have regard to the full standards of this guidance from the first day of operation.

2.6 For substantially changed activities, the permit should normally have regard to the full standards of this guidance with respect to the parts of the activity that have been substantially changed and any part of the activity affected by the change, from the first day of operation.

## Permit Reviews

2.7 Under LAPPC, the legislation requires permits to be reviewed periodically but does not specify a frequency. It is considered for this sector that a frequency of once every eight years ought normally to be sufficient for the purposes of appropriate Regulations[3]. Further guidance on permit reviews is contained in the appropriate Guidance Manual for England and Wales, Scotland and Northern Ireland. Regulators should use any opportunities to determine the variations to permits necessitated by **paragraph 2.2** above in conjunction with these reviews.

2.8 Conditions should also be reviewed where complaint is attributable to the operation of the process and is, in the opinion of the regulator, justified.

[3] For details see England and Wales, General Guidance Manual chapter 26, Scotland, Practical guide section 10, Northern Ireland Part B Guidance page 9, Northern Ireland Part C Guidance chapter 17.

# 3. Activity description

## Regulations

3.1 This note applies to LAPPC installations for Quarry processes. The activities for regulation are listed in **Table 3.1**.

**Table 3.1 - Regulations listing activities**

| LAPPC | Activity | England and Wales | Scotland | Northern Ireland |
|---|---|---|---|---|
| | | EPR Schedule 1 reference | PPC Schedule 1 reference | PPC Schedule 1 reference |
| Part B | | Section 3.5 Part B | Section 3.5, Part B | Section 3.5 Part B |
| Part C | | n/a | n/a | n/a |
| The links are to the original version of the regulations. A consolidated version is not available on www.legislation.gov.uk | | | | |

3.2 This note refers to general quarry processes associated with the processing of designated minerals, but excluding:

- The drilling/blasting/extraction of minerals, the removal of overburden, and the cutting and dressing of stone - these are not prescribed processes.
- Clay - the handling of clay at quarries is not normally likely to result in the release into air of particulate matter unless crushing, grinding or screening is taking place at the quarry. The processing and drying of clay is covered by Guidance Note PG3/02 – manufacture of heavy clay goods and refractory goods.
- Sand and gravel - the extraction of sand and gravel is not a prescribed process. Crushing, grinding, screening and grading of wet material is not normally likely to result in the release into air of particulate matter except in a quantity which is trivial. The drying of sand and minerals is covered by Guidance Note PG 3/18 – mineral drying and cooling
- Coal - this is covered by Guidance Note PG3/05 – coal, coke, coal product and petroleum coke
- The manufacture of plaster from gypsum - this is covered by Guidance Note PG3/12 – plaster processes

- Chalk - the processing of chalk is not normally likely to result in the release into air of particulate matter except in a quantity which is trivial.

3.3 Quarry processes that use **silos** may refer to the Guidance Note PG3/18 for information regarding controls relevant to silos.

3.4 Quarry processes using mobile plant for crushing or screening should use the requirements contained within this note, unless the mobile plant is separately authorised, in which case the requirements of PG3/16 should be referred to.

## Quarrying processes

3.5 "Hard rock" is a generic term which includes minerals such as granite and other types of igneous rock, as well as the harder sandstones and gritstones. Variation occurs in both grain size and mineralogy throughout the country. Hard rock is extracted, crushed and sized and used primarily as construction aggregates. Size reduction is an energy intensive process and without adequate mitigation the potential for dust emissions is high. (A small proportion of hard rock is used as dimension stone for building but this use does not usually employ crushing and screening processes and is therefore not a prescribed process.)

3.6 Limestone and dolomite are generally softer than "hard rock" and are forms of calcium carbonate but dolomite has a high magnesium content. Their end use may differ from hard rock types as they are also used to manufacture lime, cement and fine powders for use as a feedstock for other industrial processes.

3.7 The handling and processing of both "hard rocks" and limestone/dolomite are similar and described below:

Quarried material is delivered to the primary crusher directly from the quarry by a conveyor or dump truck, or it may be transferred from a surge pile (which provides a large capacity storage facility). The primary crushing and screening produces material of manageable size, typically 300 - 400 mm in size. The screening process removes undersized material and rejects oversize material which is usually fed back into the crushing process for further size reduction.

Crushed material undergoes further secondary, tertiary and sometimes even quaternary crushing and screening operations to produce a range of differently sized and shaped aggregate products. The material is generally transported between different units of plant by conveyor, enclosed to protect it from the wind. Surplus material may be deposited onto a surge pile and will be loaded back onto conveyors via vibrating feeders, or into feed hoppers by hydraulic shovel.

3.8 The aggregate products produced by the crushing processes may be further processed, either by coating with bitumen to form roadstone or by batching with cement and sand to form concrete. These activities are subject to PG notes 3/15 and 3/01 respectively.

## Crushing and screening processes

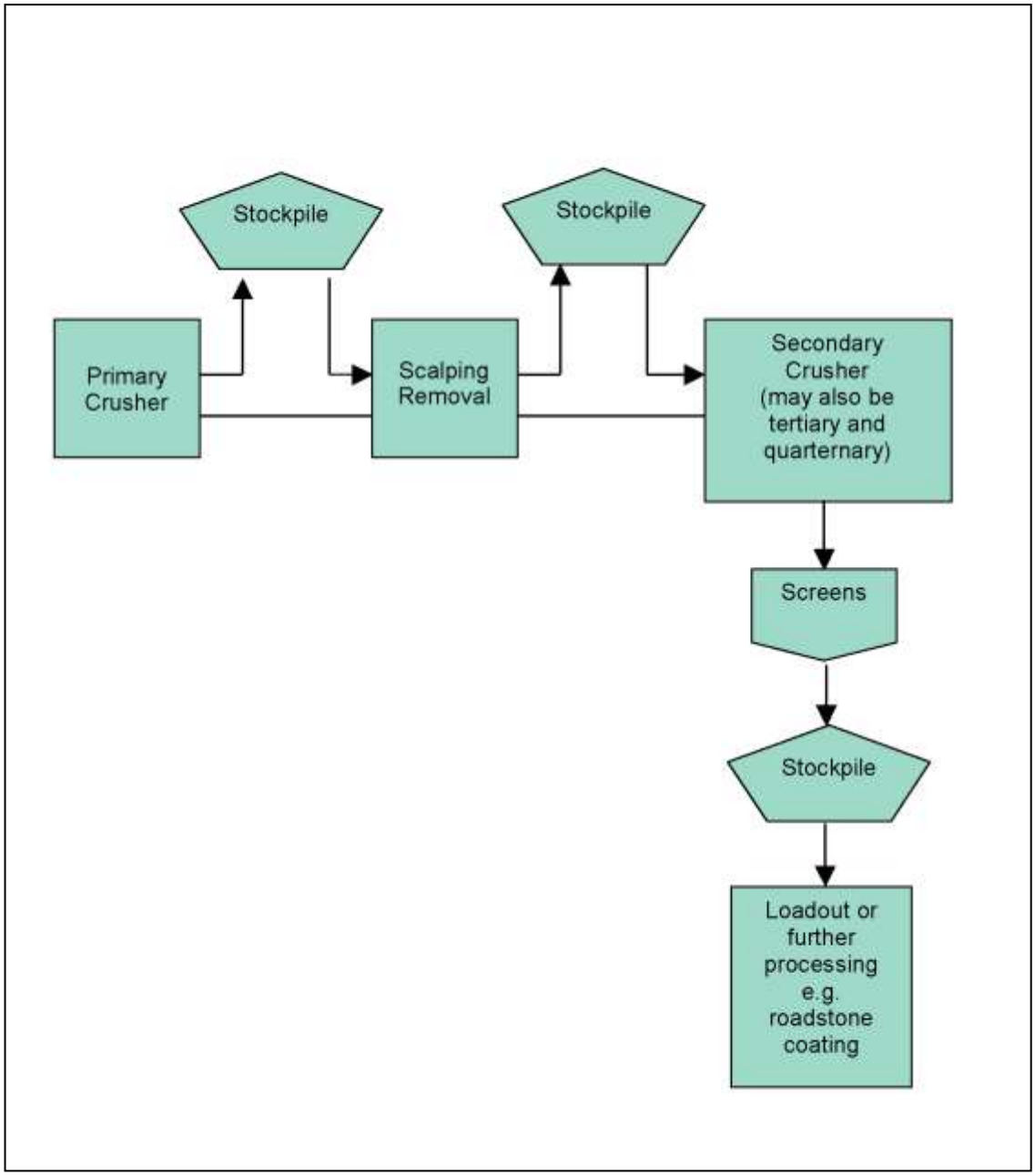
3.9 The technical term for the crushing, or size reduction of mineral, is comminution. There are four main types of crushing plant in common use in quarries:

- **Jaw crushers** - employ the pressure exerted by moving jaws to break the rock and are generally used as primary crushers to reduce 'run of quarry' stone to a manageable size of 300 - 400mm.
- **Impact crushers** - either subject rock to impacts by swiftly rotating components, or throw rock at fixed members, to break the rock into smaller aggregates and are commonly used as secondary or tertiary crushers.
- **Gyratory or cone crushers** - are similar in design and operation and reduce the size of the material through pressure exerted by a crushing head rotating eccentrically in a hollow cone shaped anvil. Gyratory crushers tend to be used for primary size reduction and cone crushers in the secondary or tertiary circuit.
- **Attrition crushers** - subject aggregates to abrasive forces generated by grinding to produce aggregate products of small size, such as fines.

3.10 The selection of a particular type of crusher will depend on the:

- size of material fed into the crusher (feed size)
- throughput of material through the crusher
- composition of rock to be crushed
- required product size and shape
- economic and power requirements

## *Figure 3.1: Flow diagram of typical crushing and screening process*



3.11 The quality of the crushed aggregate is important in determining choice of crusher. The quality of aggregates for specific uses, such as in road construction, are specified by agreed Standards. Aggregates with high cubicity are premium products required for asphalt and concrete applications because of properties such as their superior strength compared to other particle shapes.

3.12 The size and shape of crushed aggregate may be determined by choice of plant, the incorporation of different crushing stages, and the re-crushing of poor quality aggregate to produce smaller sized aggregate of the required shape.

3.13 Primary crushers typically reduce 'run of the quarry' stone (boulders) to rock in the size range 300 - 400mm.

3.14 Secondary crushers typically reduce primary crusher material to product i.e. 50 - 60 mm (larger plant) or 40 mm (smaller plant).

3.15 Tertiary crushing typically reduces secondary crusher material to products in the size range below 20mm.

3.16 Quaternary crushing produces fines for asphalt and concrete needs, and manufactured sands.

3.17 Hard rocks may pass through all four stages whereas some material may only pass through one or two stages.

3.18 The raw mineral undergoing size reduction may be washed to remove impurities such as silt or mud. This forms a slurry which is removed for treatment. Many sites make use of settlement lagoons where silt is allowed to settle from the process water which may then be recycled.

3.19 Associated with the size reduction of minerals are screening processes to sieve mineral into desired size fractions at different points in the processing circuit. Separation is achieved by passing the crushed stone over screen decks with each deck containing apertures of a different size. It is common for multi-screen vibrating decks to be used with conveyor or chute discharge to bins or external stockpiles prior to onward dispatch by road, rail of ship.

# 4. Emission limits, monitoring and other provisions

4.1 Emissions of the substances listed **Table 4.1** should be controlled.

4.2 The emission limit values and provisions described in this section are achievable using the best available techniques described in **Section 5**. Monitoring of emissions should be carried out according to the method specified in this section or by an equivalent method agreed by the regulator. Where reference is made to a British, European, or International standard (BS, CEN or ISO) in this section, the standards referred to are correct at the date of publication. (Users of this note should bear in mind that the standards are periodically amended, updated or replaced.) The latest information regarding the monitoring standards applicable can be found at the Source Testing Association website. Further information on monitoring can be found in Environment Agency publications (M1) and (M2).

4.3 All activities should comply with the emission limits and provisions with regard to releases in **Table 4.1**.

| Table 4.1 - Emission limits, monitoring and other provisions | | | | | |
|---|---|---|---|---|---|
| **Row** | **Substance** | **Source** | **Emission limits/provisions** | **Type of monitoring** | **Monitoring frequency** |
| 1 | Particulate matter | Arrestment equipment, or any point where dust contaminated air is extracted from the process to atmosphere, with exhaust flow >300$m^3$/min. | No visible emission. | Operator observations | At least daily |
| | | | New or replacement arrestment equipment should be provided with a design guarantee that the equipment can meet 50mg/$m^3$ | Recorded indicative monitoring | Continuous |
| | | | Where 50mg/$m^3$ can be achieved on existing plant by use of improved abatement consumables this should be complied with. | | |
| | | | Where 50mg/$m^3$ cannot be achieved on existing plant by use of improved abatement consumables then the plant should achieve 100mg/$m^3$ | | |
| | | Arrestment equipment, or any point where dust contaminated air is extracted from the process to atmosphere, with exhaust flow >100 – 300 $m^3$/min. | No visible emission. | Operator observations | At least daily |
| | | | New or replacement arrestment equipment should be provided with a design guarantee that the equipment can meet 50mg/$m^3$ | indicative monitoring | Continuous |
| | | | Where 50mg/$m^3$ can be achieved on existing plant by use of improved abatement consumables this should be complied with. | | |
| | | | Where 50mg/$m^3$ cannot be achieved on existing plant by use of improved abatement consumables then the plant should achieve 100mg/$m^3$ | | |
| | | Arrestment equipment, or any point where dust contaminated air is extracted from the process to atmosphere, with exhaust flow <100$m^3$/min. | No visible emission | Operator observation<br>Or<br>Indicative monitoring | At least daily<br>Or<br>Continuous |

## Monitoring, investigating and reporting

4.4 The operator should monitor emissions, make tests and inspections of the activity. The need for and scope of testing, (including the frequency and time of sampling), will depend on local circumstances.

- The operator should keep records of inspections, tests and monitoring, including all non-continuous monitoring, inspections and visual assessments. Records should be:
  - kept on site;
  - kept by the operator for at least two years; **and**
  - made available for the regulator to examine.
- If any records are kept off-site they should be made available for inspection within one working week of any request by the regulator.

## Information required by the regulator

4.5 The regulator needs to be informed of monitoring to be carried out and the results. The results should include process conditions at the time of monitoring.

- The operator should notify the regulator at least 7 days before any periodic monitoring exercise to determine compliance with emission limit values. The operator should state the provisional time and date of monitoring, pollutants to be tested and the methods to be used.
- The results of non-continuous emission testing should be forwarded to the regulator within 8 weeks of completion of the sampling.
- Adverse results from **any** monitoring activity (both continuous and non-continuous) should be investigated by the operator as soon as the monitoring data has been obtained. The operator should:
  - identify the cause and take corrective action;
  - clearly record as much detail as possible regarding the cause and extent of the problem, and the remedial action taken;
  - re-test to demonstrate compliance as soon as possible; **and** inform the regulator of the steps taken and the re-test results.

## Visible Emissions

4.6 The aim should be to prevent any visible airborne emission from any part of the process. This aim includes all sites regardless of location.

- Where ambient monitoring is carried out it may also be appropriate for the regulator to specify recording of wind direction and strength.

4.7 Where there are problems that, in the opinion of the regulator, may be attributable to the installation, such as local complaints of visual emissions or where dust from the installation is being detected beyond the site boundary, the operator should investigate in order to find out which part of their operation(s) is the cause.

- All other releases to air, other than condensed water vapour, should be free from persistent visible emissions.

- All emissions to air should be free from droplets.

If this inspection does not lead to correction of the problem then the operator should inform the regulator, who will determine whether ambient air monitoring is necessary. Ambient monitoring may either be by a British Standard method or by a method agreed with the regulator.

Whilst problems are ongoing, a visual check should also be made at least once per day/shift, by the operator, when an installation is being operated. The time, location and result of these checks, along with weather conditions such as indicative wind direction and strength, should be recorded. Once the source of the emission is known, corrective action should be taken without delay and where appropriate, the regulator may want to vary the permit in order to add a condition requiring the particular measure(s) to be undertaken**.**

## Abnormal Events

4.8 The operator should respond to problems which may have an adverse effect on emissions to air.

- In the case of abnormal emissions, malfunction or breakdown leading to abnormal emissions the operator should:
  - investigate and undertake remedial action immediately;
  - adjust the process or activity to minimise those emissions; **and**
  - promptly record the events and actions taken.
- The regulator should be informed without delay, whether or not there is related monitoring showing an adverse result:
  - if there is an emission that is likely to have an effect on the local community; **or**
  - in the event of the failure of key arrestment plant, for example, bag filtration plant or scrubber units.
- The operator should provide a list of key arrestment plant and should have a written procedure for dealing with its failure, in order to minimise any adverse effects.

## Start up and shutdown

4.9 Higher emissions may occur during start-up and shut-down of a process. These emissions can be reduced, by minimising, where possible, the number of start-ups and shut-downs and having adequate procedures in place for start-up, shut-down and emergency shut-downs.

All appropriate precautions must be taken to minimise emissions during start-up and shutdown.

## Continuous Monitoring

4.10 Continuous monitoring can be either “quantitative” or “indicative”. With quantitative monitoring the discharge of the pollutant(s) of concern is measured and recorded numerically. For pollution control this measurement is normally expressed in milligrams per cubic metre of air, ($mg/m^3$). Where discharge of the pollutant concerned is controlled by measuring an alternative parameter, (the “surrogate” measurement), this surrogate is also expressed numerically.

Continuous indicative monitoring is where a permanent device is fitted, for example, to detect leaks in a bag filter, but the output, whether expressed numerically or not, does not show the true value of the discharge. When connected to a continuous recorder it will show that emissions are gradually (or rapidly) increasing, and therefore maintenance is required. Alternatively it can trigger an alarm when there is a sudden increase in emissions, such as when arrestment plant has failed.

4.11 Where continuous indicative monitoring has been specified, the information provided should be used as a management tool. Where used, the monitor should be set up to provide a baseline output when the plant is known to be operating under the best possible conditions and emissions are complying with the requirements of the permit. Where used to trigger alarms, the instrument manufacturer should be able to set an output level which corresponds to around 75% of the emission limit. Thus the alarms are activated in response to this significant increase in pollutant loading above the baseline, so that warning of the changed state is given before an unacceptable emission occurs. The regulator may wish to agree the alarm trigger level.

4.12 Where continuous monitoring is required, it should be carried out as follows:

- All continuous monitoring readings should be on display to appropriately trained operating staff.
- Instruments should be fitted with audible and visual alarms, situated appropriately to warn the operator of arrestment plant failure or malfunction.
- The activation of alarms should be automatically recorded.
- All continuous monitors should be operated, maintained and calibrated (or referenced, in the case of indicative monitors) in accordance with the manufacturers' instructions, which should be made available for inspection by the regulator. The relevant maintenance and calibration (or referencing, in the case of indicative monitors) should be recorded.
- Emission concentrations may be reported as zero when the plant is off and there is no flow from the stack. If required a competent person should confirm that zero is more appropriate than the measured stack concentration if there is no flow.
- Any CEM used should provide reliable data>95% of the operating time, (i.e. availability >95%). A manual or automatic procedure should be in place to detect instrument malfunction and to monitor instrument availability.

## Calibration and compliance monitoring.

4.13 Compliance monitoring can be carried out either by use of a continuous emissions monitor (CEM), or by a specific extractive test carried out at a frequency agreed with the regulator.

4.14 Where a CEM is used for compliance purposes it must be periodically checked, (calibrated), to ensure the readings being reported are correct. This calibration is normally done by carrying out a parallel stand-alone extractive test and comparing the results with those provided by the CEM.

4.15 For extractive testing the sampling should meet the following requirements:

- For all activities the sampling period should be sufficient such that at least 3 results are obtained.

4.16 Should the activity either be continuous, or have a batch cycle that is not compatible with the time available for sampling, then the data required should be obtained over a minimum period of 2 hours in total.

- For demonstration of compliance where a CEM is used no daily mean of all 15-minute mean emission concentrations should exceed the specified emission concentration limits during normal operation (excluding start-up and shut-down); **and**

- no 15-minute mean emission concentration should exceed twice the specified emission concentration limits during normal operation (excluding start-up and shut-down).

- For extractive testing, no result of monitoring should exceed the emission limit concentrations specified.

4.17 Exhaust flow rates should be consistent with efficient capture of emissions, good operating practice and meeting the requirements of the legislation relating to the workplace environment.

- The introduction of dilution air to achieve emission concentration limits should not be permitted.

Dilution air may be added for exhaust gas cooling or improved dispersion where this is shown to be necessary because of the operational requirements of the plant, but this additional air should be discounted when determining the mass concentration of the pollutant in the exhaust gases.

## Varying of monitoring frequency

4.18 Where non-continuous quantitative monitoring is required, the frequency may be varied. Where there is consistent compliance with emission limits, regulators may consider reducing the frequency. However, any significant process changes that might have affected the monitored emission should be taken into account in making the decision.

4.19 The following should be considered when deciding whether compliance is consistent:

a. the variability of monitoring results, for example, results which range from 30 - 45 mg/m$^3$, against an emission limit of 50 mg/m$^3$ might not qualify for a reduction in monitoring.

b. the margin between the results and the emission limit, for example, results which range from 45 - 50 mg/m$^3$ when the limit is 50 mg/m$^3$ might not qualify for a reduction in monitoring.

Consistent compliance should be demonstrated using the results from at least;

- three or more consecutive annual monitoring campaigns; **or**
- two or more consecutive annual monitoring campaigns supported by continuous monitoring.

Where a new or substantially changed process is being commissioned, or where emission levels are near to or approach the emission concentration limits, regulators should consider increasing the frequency of testing.

4.20 A reduction in monitoring frequency should not be permitted where continuous quantitative or indicative monitoring is required. These types of monitoring are needed to demonstrate at all times when the plant is operating, that either the emission limits are being complied with or that the arrestment equipment is functioning correctly

## Monitoring of unabated releases

4.21 Where emission limit values are consistently met without the use of abatement equipment, the monitoring requirement for those pollutants should be dispensed with subject to the “Varying of monitoring frequency” paragraphs above.

## Representative sampling

4.22 Where monitoring is not in accordance with the main procedural requirements of the relevant standard, deviations should be reported.

4.23 Whether sampling on a continuous or non-continuous basis, care is needed in the design and location of sampling systems, in order to obtain representative samples for all release points.

- Sampling points on new plant should be designed to comply with the British or equivalent standards, (see **paragraph 4.2**).
- The operator should ensure that relevant stacks or ducts are fitted with facilities for sampling which allow compliance with the sampling standards.

# 5. Control techniques

## Summary of best available techniques

5.1 **Table 5.1** provides a summary of the best available techniques that can be used to control the process in order to meet the emission limits and provisions in **Section 4**. Provided that it is demonstrated to the satisfaction of the regulator that an equivalent level of control will be achieved, then other techniques may be used.

**Table 5.1 - Summary of control techniques**

| Sources of dust | Control techniques |
|---|---|
| Loading and unloading processes<br>▪ Transfer of materials | Containment<br>Suppression<br>Reduced drop heights<br>▪ use of variable height conveyors<br>▪ use of chutes<br>Dust arrestment (loading/unloading area)<br>▪ bag filters<br>▪ cartridge filters |
| Double handling transfer points | Site and process design<br>▪ reduction of vehicle movement |
| Aggregate stockpiles | Appropriate siting<br>Wind dynamics management<br>▪ use of fencing, bunding, profiling etc.<br>Reduced drop heights<br>Suppression<br>Bowsers<br>Covering<br>▪ below ground or covered stock bins<br>▪ dust covers<br>▪ housing |
| Conveyors, conveyor transfer points | Containment<br>▪ wind boards<br>▪ housings<br>Suppression<br>Appropriate siting<br>▪ away from site boundary especially if near residential or other sensitive receptors |

| | |
|---|---|
| Crushing, grinding, screening and separation | Containment<br>▪ within housing<br>Dust arrestment<br>▪ bag filters / cartridge filters<br>Suppression |
| Blending, packing processes etc. | Containment<br>Reduced drop heights<br>Dust arrestment<br>▪ bag filters / cartridge filters |
| Roadways including haulage roads | Suppression<br>▪ water bowsers and sprays<br>Site and process design<br>▪ to reduce vehicular movement |
| Vehicles – bodies and wheels | Wheel cleaning facility |

## Techniques to control emissions from contained sources

5.2 Emissions from the process operations covered by this note comprise very fine particulate matter, in the form of dust. The control of dust emissions from these processes is mainly by the use of enclosures, collection and suppression. Bag filters and wet scrubbers are commonly used to abate emissions. Handling and transport of dusty materials should be carried out so as to prevent or minimise airborne dust emissions, as this reduces the potential for fugitive emissions. The aim should be to prevent visible dust emissions from materials handling operations.

- The packing of dusty materials into bags should be carried out using purpose designed plant fitted with extraction for displaced air ducted to arrestment plant (for example bag filters).
- Crushing plant should be fitted with an efficient means of controlling dust, to the satisfaction of the regulator.
- Crushers should be designed to minimise the free fall of materials especially on discharge.
- Screening plant should be fitted with an efficient means of controlling dust, to the satisfaction of the regulator.
- Screens should be designed to minimise the free fall of materials especially on discharge.

5.3 Appropriate dust control measures may include the following where necessary to meet the requirements.

- enclosure fitted with extract ventilation to arrestment plant;
- enclosure fitted with water sprinklers.

5.4 Unacceptable emissions of droplets could possibly occur from wet arrestment plant where the linear velocity within the associated ductwork exceeds 9 m/s. The use of mist eliminators reduces the potential for droplet emissions.

- Where a linear velocity of 9 m/s is exceeded in the ductwork of existing wet arrestment plant, it should be reduced to the extent that is practicable to ensure that droplet fallout does not occur.

## Techniques to control fugitive emissions

5.5 Fugitive dust emissions should be prevented whenever practicable. When this is not practicable arrestment should be used, or emissions should be controlled at source by measures agreed between the regulator and the operator, for example, avoidance of spillage and maintenance of high standards of internal and external housekeeping. Where water is used as a method of dust suppression, processes should have an adequate supply of water and all water suppression systems should have adequate frost protection. To make buildings as dust tight as necessary to prevent a visible emission, self-closing doors and close-fitting entries and exits for conveyors are among the options that may be used.

- All process buildings should be made as dust tight as is necessary to prevent visible emissions.
- All process buildings should be cleaned at intervals sufficient to minimise fugitive emissions. Attention should be paid to preventing and cleaning up deposits of dust on external support structures and roofs, in order to minimise wind entrainment of deposited dust.
- All new buildings housing processing machinery should be externally clad with materials that can be readily cleaned.
- Where local exhaust ventilation is used, emissions should be ducted to suitable arrestment plant.
- Dusty wastes should be stored in closed containers where practicable and handled in a manner that avoids emissions of dust.
- The method of collection of product or waste from dry arrestment plant should be such that dust emissions are minimised.
- A high standard of housekeeping should be maintained.

- All spillages which may give rise to dust emissions should be cleaned up promptly, normally by wet handling methods. Dry handling of dusty spillages should not be permitted other than in fully enclosed buildings. (NB Dry handling of dusty spillages within fully enclosed buildings may not be acceptable under COSHH.) In the event of a major spillage it should be dealt with on the same day that it occurs, and measures to minimise emissions, such as wetting the surface to create a crust, should be taken immediately.

## Conveying

5.6 There are various ways of keeping conveyor belts and the surrounding areas clean. For example, where chevron belts are used, catch plates may be fitted to contain dust falling from the underside of the belt at the turning point. From a health and safety perspective this is not always possible and hoses and sprinklers is a possible alternative. New conveyors can be designed to minimise free fall at discharge points. A chute, or similar equipment, at the point of discharge from a conveyor reduces dust arising. Arrestment plant might be a suitable control option if dusty emissions arise from conveyor transfer points. The conditions relating to conveyors should not be applied where material has been screened to remove particles under 3 mm in size, unless visible dust emissions have been observed from the conveyors. The following conditions should only be applied where emissions to the external environment are likely to arise:

- Other than deep trough ground-level conveyors carrying primary crusher material, all conveyors should be enclosed in order to minimise wind-whipping (i.e. at least on one side and above). Transfer points between such conveyors should be enclosed and fitted with flexible seals on inlet and exits.

- Where dry materials are handled, transfer points should be ducted to arrestment plant or suppressed as necessary to avoid visible emissions.

- Conveyors should be fitted with effective means for keeping the return belt clean and for collecting materials removed by this cleaning operation. For example, belt scrapers fitted at all head drum returns and catch plates fitted to contain falling dust.

- Conveyor belts should not be overloaded.

- Where the free fall of material gives rise to external dust emissions, techniques should be used at the point of discharge to minimise this, for example the use of a chute or similar equipment.

- Where dust emissions from conveyors are visible, dust suppression equipment should be used or the plant should be vented to suitable arrestment equipment, as agreed with the regulator.

- Planned preventative maintenance schedules should include conveyor systems.

## Loading, unloading and transport

5.7 Effective dust control measures are required for all vehicles arriving at or leaving the site where the load may give rise to dust in transportation, bearing in mind that emissions from moving vehicles may give rise to a significant problem. Such controls should not normally be required for the transportation of designated material which is above 75mm, as these materials are unlikely to give rise to dust emissions.

5.8 Sheeting is the usual technique required to prevent dust emissions from road vehicles. Where stone is loaded or unloaded dust emissions should be minimised by water suppression or by local dust extraction if required.

5.9 Rail wagons that are either aerodynamically designed to eliminate product blow off or "canopied" should be considered for use when transporting such products. Application of aqueous polymer dispersions can also provide adequate protection for such loads. Suppression using water has been found to be adequate for short journeys, normally of duration less than 1 hour.

5.10 Where specific techniques are referred to below the regulator should accept an alternative method provided it is demonstrated to achieve an equivalent level of control.

- Where road vehicles are used to transport potentially dusty materials, they should be sheeted or otherwise totally enclosed as soon as possible after loading and before leaving the site.

- Where rail wagons are used to transport potentially dusty materials the following techniques should be used to prevent emissions in transit:

  - for short journeys (typically of duration less than 1 hour) water suppression will normally be sufficient;

  - for longer journeys either application of an aqueous polymer dispersion to the surface of the load should be used, or rail wagons that are "canopied" or aerodynamically designed to eliminate product blow off.

- Where stone with the potential to give rise to dust emissions in transit is being delivered to the quarry, the above measures should be complied with prior to the vehicle being admitted on site.

- Loading and unloading of product for transport by road, rail or sea should be carried out so as to minimise the generation of airborne dust.

- Tankers carrying dusty materials should discharge only into silos fitted with an effective dust collecting system.

- Internal road transport of processed materials likely to generate dust should be carried out in sheeted vehicles, or the materials should be conditioned with water.

## Roadways and transportation

5.11 In designing a new process, minimising vehicle movement in the site layout will enable better control of roadways with the potential for fugitive emissions.

5.12 Vehicle exhausts directed above the horizontal are preferred as these avoid the impact of the exhaust raising dust when travelling on internal roadways.

5.13 On some sites wheel-cleaning facilities may be useful to prevent dust being carried off the site. Vehicles may also be effectively cleaned, prior to leaving site, with a brush and hose. Sometimes the presence of a long access road ensures that any dust falls off the vehicles and does not reach the public highway. Hard surfacing for roadways should normally comprise compacted stone chippings between the loading points and the wheel wash (where present), and macadam or concrete for the final section of road leading to the public highway. Sweeping, wetting or sealing are all techniques that may be used to reduce dust emissions from roads. The technique that should be used depends upon the type of road under consideration.

- Roadways in normal use and any other area where there is regular movement of vehicles should have a hard surface capable of being cleaned or kept wet. They should be kept clean or wet, in order to prevent or minimise dust emissions. They should be adequately drained to avoid ponding of water. They should be kept in good repair. This provision only applies to roads inside a working quarry to the extent that they form part of the Part B installation. (Guidance on the meaning of “installation “ can be found in Annex III of the “General Guidance Manual”.)

- Where necessary to prevent visible dust being carried off site, wheel-cleaning facilities should be provided and used by vehicles before leaving the site.

- Vehicle exhausts should not, wherever practicable, be directed below the horizontal.

- Internal road transport of processed materials likely to generate dust should be carried out in sheeted vehicles, or the materials should be conditioned with water.

## Stockpiles and ground storage

5.14 Consideration should be given to the siting of stockpiles, based upon such factors as the prevailing winds, sheltered positions, proximity of neighbours and site operations. A method of stockpiling should be employed which minimises dust emissions, e.g. profiling. Minimisation of drop height is very important in stockpiling to reduce wind whipping of particulates. Loading to and from stockpiles should be carried out in such a manner as to minimise wind-borne dust e.g. taking place at sheltered points.

5.15 Material that is likely to give rise to airborne dust when windwhipped should not be stored in the open. It is recognised that on some sites, where a historical surplus of material has accumulated that can not be housed due to its sheer quantity, stockpiles might be in use for materials that may give rise to dust emissions. When necessary to control dust emissions from stockpiles, methods such as limiting the height of stockpiles or using dust suppressants may be used. Other possible controls include wind breaks on stock piles, bunding or fencing around the pile and strategic arrangement of stockpiles. Periodic conditioning with water, according to weather conditions, may be an appropriate measure. Installation of fixed water sprays should be considered for long term stocking areas if appropriate.

- When using storage bays, storage height should be lower than external walls of the bays unless suppression is provided to control emissions.
- No material should be stored in the open except for that which is unlikely to give rise to airborne dust. Examples of material that is unlikely to cause dusty emissions include:
- Where the only practicable option for the storage of material under 3mm is external stockpiles, particularly careful consideration should be given to the measures outlined in this guidance note.
- Designated minerals that have not been screened to remove material under 3mm should be conditioned with water or proprietary conditioning agents at or before the point of discharge onto the stockpile.
- Storage areas should be kept in a condition that does not give rise to visible dust emissions.
- Unused stocking areas should also be controlled to prevent visible dust emissions.

## Air Quality

### Dispersion & Dilution

5.16 Pollutants that are emitted via a stack require sufficient dispersion and dilution in the atmosphere to ensure that they ground at concentrations that are deemed harmless. This is the basis upon which stack heights are calculated using HMIP Technical Guidance Note, D1. The stack height so obtained is adjusted to take into account local meteorological data, local topography, nearby emissions and the influence of plant structure.

The calculation procedure of D1 is usually used to calculate the required stack height but alternative dispersion models may be used in agreement with the regulator. An operator may choose to meet tighter emission limits in order to reduce the required stack height.

5.17 Where an emission consists purely of air and particulate matter, (i.e. no products of combustion or any other gaseous pollutants are emitted) the above provisions relating to stack height calculation for the purpose of dispersion and dilution should not normally be applied. Revised stack height calculations should not be required as a result of publication of this revision of the PG note, unless it is considered necessary because of a breach or serious risk of breach of an EC Directive limit value or because it is clear from the detailed review and assessment work that the permitted process itself is a significant contributor to the problem.

### Ambient air quality management.

5.18 In areas where air quality standards or objectives are being breached or are in serious risk of breach and it is clear from the detailed review and assessment work under Local Air Quality Management that the permitted process itself is a significant contributor to the problem, it may be necessary to impose tighter emission limits.

If the standard that is in danger of being exceeded is not an EC Directive requirement, then industry is not expected to go beyond BAT to meet it. Decisions should be taken in the context of a local authority's Local Air Quality Management action plan. For example, where a permitted process is only responsible to a very small extent for an air quality problem, the authority should not unduly penalise the operator of the process by requiring disproportionate emissions reductions. Paragraph 59 of the Air Quality Strategy 2007 [Volume 1] gives the following advice:

"...In drawing up action plans, local authority environmental health/pollution teams are expected to engage local authority officers across different departments, particularly, land-use and transport planners to ensure the actions are supported by all parts of the authority. In addition, engagement with the wider panorama of relevant stakeholders, including the public, is required to ensure action plans are fit-for-purpose in addressing air quality issues. It is vital that all those organisations, groups and individuals that have an impact upon local air quality, buy-in and work towards objectives of an adopted action plan."

### Stacks, vents and process exhausts

5.19 Liquid condensation on internal surfaces of stacks and exhaust ducts might lead to corrosion and ductwork failure or to droplet emission. Adequate insulation will minimise the cooling of waste gases and prevent liquid condensation by keeping the temperature of the exhaust gases above the dewpoint. A leak in a stack/vent and the associated ductwork, or a build up of material on the internal surfaces may affect dispersion:

- Flues and ductwork should be cleaned to prevent accumulation of materials, as part of the routine maintenance programme.

5.20 When dispersion of pollutants discharged from the stack (or vent) is necessary, the target exit velocity should be 15m/sec under normal operating conditions, however, lower velocities than 15m/s are acceptable provided adequate dispersion and dilution is achieved (see also the paragraph below regarding wet plumes). In order to ensure dispersion is not impaired by either low exit velocity at the point of discharge, or deflection of the discharge, a cap, or other restriction, should not be used at the stack exit. However, a cone may sometimes be useful to increase the exit velocity to achieve greater dispersion.

5.21 An exception to the above is where wet arrestment is used as the abatement. Unacceptable emissions of droplets could occur from such plant where the linear velocity in the stack exceeds 9 m/sec. To reduce the potential of droplet emissions a mist eliminator should be used. Where a linear velocity of 9m/sec is exceeded in existing plant consideration should be given to reducing this velocity as far as practicable to ensure such droplet entrainment and fall out does not happen.

## Management

### Management techniques

5.22 Important elements for effective control of emissions include:

- proper management, supervision and training for process operations;
- proper use of equipment;
- effective preventative maintenance on all plant and equipment concerned with the control of emissions to the air; **and**
- ensuring that spares and consumables - in particular, those subject to continual wear – are held on site, or available at short notice from guaranteed local suppliers, so that plant breakdowns can be rectified rapidly. This is important with respect to arrestment plant and other necessary environmental controls. It is useful to have an audited list of essential items.

### Appropriate management systems

5.23 Effective management is central to environmental performance; It is an important component of BAT and of achieving compliance with permit conditions. It requires a commitment to establishing objectives, setting targets, measuring progress and revising the objectives according to results. This includes managing risks under normal operating conditions and in accidents and emergencies. It is therefore desirable that installations 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. Operators may also find that an EMS will help identify business savings.

5.24 Regulators should use their discretion, in consultation with individual operators, in agreeing the appropriate level of environmental management. Simple systems which ensure that LAPPC considerations are taken account of in the day-to-day running of a process may well suffice, especially for small and medium-sized enterprises. Regulators are urged to encourage operators to have an EMS for all their activities, but it is outside the legal scope of an LAPPC permit to require an EMS for purposes other than LAPPC compliance. For further information/advice on EMS refer to the appropriate chapter of the appropriate Guidance Manual for England and Wales, Scotland and Northern Ireland.

### Training

5.25 Staff at all levels need the necessary training and instruction in their duties relating to control of the process and emissions to air. In order to minimise risk of emissions, particular emphasis should be given to control procedures during start-up, shut down and abnormal conditions. Training may often sensibly be addressed in the EMS referred to above.

- All staff whose functions could impact on air emissions from the activity should receive appropriate training on those functions. This should include:
  - awareness of their responsibilities under the permit;
  - steps that are necessary to minimise emissions during start-up and shutdown;
  - actions to take when there are abnormal conditions, or accidents or spillages that could, if not controlled, result in emissions.
- The operator should maintain a statement of training requirements for each post with the above mentioned functions and keep a record of the training received by each person. These documents should be made available to the regulator on request.

### Maintenance

5.26 Effective preventative maintenance plays a key part in achieving compliance with emission limits and other provisions. All aspects of the process including all plant, buildings and the equipment concerned with the control of emissions to air should be properly maintained. In particular:

- The operator should have the following available for inspection by the regulator:
  - a written maintenance programme for all pollution control equipment; **and**
  - a record of maintenance that has been undertaken.

# 6. Summary of changes

The main changes to this note, with the reasons for the change, are summarised below in **Table 6.1**. Minor changes that will not impact on the permit conditions e.g. slight alterations to the Process Description have not been recorded.

**Table 6.1 - Summary of changes**

| Section/ Paragraph /row | Change | Reason | Comment |
|---|---|---|---|
| Introduction | | | |
| | Simplification of text | Make Note clearer | |
| | Addition of links | Change to electronic format | Removes need for extensive footnotes/references |
| Emission limits, monitoring and other provisions | | | |
| | Removal of redundant paragraphs | | |
| Para 4.7 | Removal of the need to carry out recorded daily visual checks. | Bring into line with all other PGNs | Operators now routinely train their staff throughout the site to identify when there are visual emissions occuring. Formal records are no longer as useful as a management tool. |
| Para 5.8 | Removal of requirement to provide suppression water | Allow operator to decide on need for suppression | Simplification to allow operators the flexibility in provision of water to potentially dust free loading areas. |
| Control techniques | | | |
| Air Quality | Clarification of exhaust velocity requirements | | |

# 7. Further information

## Sustainable consumption and production (SCP)

Both business and the environment can benefit from adopting sustainable consumption and production practices.

Estimates of potential business savings include:

- £6.4 billion a year UK business savings from resource efficiency measures that cost little or nothing;
- 2% of annual profit lost through inefficient management of energy, water and waste;
- 4% of turnover is spent on waste.

When making arrangement to comply with permit conditions, operators are strongly advised to use the opportunity to look into what other steps they may be able to take. Regulators may be willing to provide assistance and ideas, although cannot be expected to act as unpaid consultants.

## Health and safety

Operators of processes and installations must protect people at work as well as the environment:

- requirements of a permit should not put at risk the health, safety or welfare of people at work;
- equally, the permit must not contain conditions whose only purpose is to secure the health of people at work. That is the job of the health and safety enforcing authorities.

Where emission limits quoted in this guidance conflict with health and safety limits, the tighter limit should prevail because:

- emission limits under the relevant environmental legislation relate to the concentration of pollutant released into the air from prescribed activities;
- exposure limits under health and safety legislation relate to the concentration of pollutant in the air breathed by workers;
- these limits may differ since they are set according to different criteria. It will normally be quite appropriate to have different standards for the same pollutant, but in some cases they may be in conflict (for example, where air discharged from a process is breathed by workers). In such cases, the tighter limit should be applied to prevent a relaxation of control.

## Further advice on responding to incidents

The UK Environment Agencies have published guidance on producing an incident response plan to deal with environmental incidents. Only those aspects relating to air emissions can be subject to regulation via a Part B permit, but regulators may nonetheless wish to informally draw the attention of all appropriate operators to the guidance.

It is not envisaged that regulators will often want to include conditions, in addition to those advised in this PG note, specifying particular incident response arrangements aimed at minimising air emissions. Regulators should decide this on a case-by-case basis. In accordance with BAT, any such conditions should be proportionate to the risk, including the potential for harm from air emissions if an incident were to occur. Account should therefore be taken of matters such as the amount and type of materials held on site which might be affected by an incident, the likelihood of an incident occurring, the sensitivity of the location of the installation, and the cost of producing any plans and taking any additional measures.

# Appendix 1 - Application form

**Application for a permit for a quarry process**

Local Authority Pollution Prevention and Control
Pollution Prevention and Control Act, 1999
Environmental Permitting (England and Wales) Regulations 2010

## Introduction

**When to use this form**
Use this form if you are applying for a permit to a Local Authority to operate a quarry process installation as defined in Schedule 1 to the Environmental Permitting Regulations.

The appropriate fee must be enclosed with the application to enable it to be processed further. When complete, send the form and the fee and any additional information to:

**Insert local authority address**

**If you need help and advice**
We have made the application form as straightforward as possible, but please get in touch with us at the local authority address given above if you need any advice on how to set out the information we need.

For the purposes of Section H of the form, a relevant offence is any conviction for an offence relating to the environment or environmental regulation.

| LAPPC application form: to be completed by the operator | | |
|---|---|---|
| For Local Authority use | | |
| Application reference | Officer reference | Date received |

## A The basics

### A1 Name and address of the installation (not required for mobile plant)

| |
|---|
| Postcode Telephone |

### A2 Details of any existing environmental permit or consent *(for waste operations, include planning permission for the site, plus established use certificates, a certificate of lawful existing use, or evidence why the General Permitted Development Order applies.*

| |
|---|
| |

### A3 Operator details (*The 'operator' = the person who it is proposed will have control over the installation in accordance with the permit (if granted).)*

| |
|---|
| Name:<br><br>Trading name, if different: |
| Registered office address:<br><br><br><br>Principal office address, if different: |
| Company registration number: |

**A4 Any holding company?**

Is the operator a subsidiary of a holding company within the meaning of section 1159 of the Companies Act 2006? If "yes" please fill in details of the ultimate holding company.

No ☐ Yes ☐

| |
|---|
| Name:<br><br>Trading name, if different: |
| Registered office address:<br><br><br><br>Principal office address, if different: |
| Company registration number: |

**A5 Who can we contact about your application?** *It will help to have someone who we can contact directly with any questions about your application. The person you name should have the authority to act on behalf of the operator - This can be an agent or consultant.*

| |
|---|
| Name and position:_____<br><br><br><br>Telephone:_____<br><br><br>Email:_____ |

**B** **The installation**

**B1** **Do you crush or screen minerals at a quarry?**

☐ Yes ☐ No

**B2** **Does the activity process more than 100,000 tonnes of material in any 12 month period?**

☐ Yes ☐ No

**If you have answered 'yes' to B2 /the installation is not suitable for a simple permit.**

**B3** **Why is the application being made?**

☐ new installation

☐ change to existing installation means it now needs a permit

**B4** **Site maps – please provide:**

- **A location map with a red line round the boundary of the installation**

Document reference: _____

- **A site plan or plans showing where all the relevant activities are on site:**

a) where the processing plant will be installed

b) the areas and buildings/structures designated for materials and waste storage and the type of storage

c) the conveyors and transfer points

d) any directly associated activities or waste operations.

To save applying for permit variations, you can also show where on site you might want to use for storage etc in the future.

Document reference: _____

**B5** **Are there any sites of special scientific interest (SSSIs) or European protected sites nearer than any of the following distances to the proposed installation?**

- 1km - where the installation involves mineral or cement and lime activities

☐ Yes ☐ No

**If 'yes', is the installation likely to have a significant effect on these sites and, if so, please write on a separate sheet or enclose a relevant document explaining what the implications are for the purposes of the Conservation (Natural Habitats etc) Regulations 1994 (see appendix 2 of Annex XVII of the** general guidance manual)

**B6 Will emissions from the activity potentially have significant environmental effects (including nuisance)?**

☐ Yes ☐ No

**If 'yes':** list the potential significant local environmental effects (including nuisance) of the foreseeable emissions

Document Reference:_____

- please enclose a copy of any environmental impact assessment which has been carried out for the installation under planning legislation or for any other purpose.

Document Reference:_____

## C The details

**C1 Does your installation have arrestment equipment, with external discharge points, not serving silos or dryers with an airflow of:** (*Tick all that apply)*

a) over 300m$^3$/minute: ☐ Yes ☐ No

b) under 300m$^3$/minute and over 100m$^3$/minute: ☐ Yes ☐ No

c) under 100 m$^3$/minute: ☐ Yes ☐ No

**C2 Do you have continuous monitors to show compliance with a numerical limit in Table 1 of the simple permit?** *[informs Condition 2]*

☐ Yes ☐ No

**If yes, do the continuous monitors have alarms which are:**

a) visible ☐ Yes ☐ No

b) audible ☐ Yes ☐ No

c) alarm activation recorded automatically ☐ Yes ☐ No

d) is a trigger level set ☐ Yes ☐ No

At what percentage of the emission limit is the value set? _____%

**C3 Do you have pneumatic transfer of materials?** *[informs condition 8]*

☐ Yes ☐ No

**C4 For materials not dealt with in C2, what facilities will be provided to store any dusty material and waste?** (t*ick all that apply)* *[informs condition 4 & 5]*

a) hopper wind-protected on at least 3 sides ☐

b) storage bay without suppression and stockpiles kept lower than the retaining walls ☐

c) storage bay with suppression ☐

d) fully-enclosed stores ☐

e) other e.g silos - please specify: ☐

_____

**C5 Will any material be stored in the open (unenclosed) other than material wholly comprised of one or more of the following: >3mm material, sand, scalpings, road sub base (MOT) material that has been conditioned before deposit, conditioned crusher-run or blended material?** *[informs condition 8]*

☐ Yes ☐ No

**C6 Do you have belt conveyors?** *[informs condition 6]*

☐ Yes ☐ No

**If yes to question C6, which of the following facilities will be provided to convey any dusty material and waste?** (*tick all that apply)* *[informs condition 6]*

a) deep trough ground-level conveyor ☐

b) fully-enclosed conveyor ☐

c) pneumatic handling system ☐

d) bucket elevator ☐

e) wind boards ☐

f) other, please specify: _____

**C7 Which of the following methods will be used to minimise emissions at belt conveyor transfer points, including free fall of material?** *(tick all that apply)* *[informs condition 6]*

a) enclosed ☐

b) enclosed and ducted to arrestment equipment ☐

c) fitted with a chute ☐

d) other - please specify_____

**C8 Which of the following techniques will be used to clean belt conveyors?** *(tick all that apply)* *[informs condition 6]*

a) belt scrapers ☐

b) catch plates ☐

c) other techniques for keeping the return belt clean and collecting the material removed by the cleaning – *please specify:*

_____

**C9 How will potentially dusty materials (including any raw materials, finished products and waste), arrive at or leave the site?** *(tick all that apply)* *[informs Condition 7]*

| | **Raw Materials** | **Finished Products** | **Waste** |
|---|---|---|---|
| **Road** | | | |
| **Rail** | | | |
| **Other** | | | |

**C10 How will potentially dusty materials, (including any raw material, finished products and waste) be transported within the site?** *(tick all that apply)* *[informs BAT]*

a) tanker ☐

b) fully-enclosed transport ☐

c) 'canopied' rail wagons ☐

d) sheeted transport ☐

e) water suppression applied to the transported material ☐

f) aqueous polymer suppression applied to the transported material ☐

g) bagged ☐

h) other – please specify: _____

**C11 Do you have any quarry roads as part of the installation?**

*[informs condition 8]*

☐ Yes ☐ No

**C12 Which techniques will you use to ensure that vehicles do not track material onto the highway?** *[informs condition 9]*

a) Body and wheel wash ☐ Yes ☐ No

b) Wheel wash ☐ Yes ☐ No

c) Hose and brush ☐ Yes ☐ No

d) Sufficient distant to the site boundary on sealed road before leaving site

☐ Yes ☐ No

e) Other, please describe: _____

**C13 How do you minimise the freefall of materials at crusher discharge?**

_____

_____

_____

**C14 How do you control dust at screening plant?** (tick all that apply)

*[informs Table 1]*

a) working with wet materials ☐

b) no fine material ☐

c) location ☐

d) enclosure within machine ☐

e) enclosure within building ☐

f) other, please describe: _____

**C15 Do you have environmental management procedures and policy?**

*[informs condition 3, 11 & 12]*

☐ Yes ☐ No

**D** **Anything else**

Please tell us anything else you would like us to take account of.

Document Reference: _____

**E** **Application fee**

You must enclose the relevant fee with your application.

If your application is successful you will also have to pay an annual subsistence charge, so please say who you want invoices to be sent to.

**F Protection of information**

**F1 Any confidential or national security info in your application?**

If there is any information in your application you think should be kept off the public register for confidentiality or national security reasons, please say what and why. General guidance manual chapter 8 advises on what may be excluded. (*Do not include any national security information in your application. Send it, plus the omitted information, to the Secretary of State or Welsh Ministers who will decide what, if anything, can be made public.)*

Document Reference:_____

**F2 Please note: data protection**

The information you give will be used by the Council to process your application. It will be placed on the relevant public register and used to monitor compliance with the permit conditions. We may also use and or disclose any of the information you give us in order to:

- consult with the public, public bodies and other organisations,
- carry out statistical analysis, research and development on environmental issues,
- provide public register information to enquirers,
- make sure you keep to the conditions of your permit and deal with any matters relating to your permit
- investigate possible breaches of environmental law and take any resulting action,
- prevent breaches of environmental law,
- offer you documents or services relating to environmental matters,
- respond to requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004 (if the Data Protection Act allows)
- assess customer service satisfaction and improve our service.

We may pass on the information to agents/representatives who we ask to do any of these things on our behalf.

**F3 Please note: it is an offence to provide false etc information**

It is an offence under regulation 38 of the EP Regulations, for the purpose of obtaining a permit (for yourself or anyone else), to:

- make a false statement which you know to be false or misleading in a material particular,
- recklessly make a statement which is false or misleading in a material particular
- intentionally to make a false entry in any record required to be kept under any environmental permit condition
- with intent to deceive, to forge or use a document issued or required for any purpose under any environmental permit condition.

If you make a false statement

- we may prosecute you, and
- if you are convicted, you are liable to a fine or imprisonment (or both).

## H Declarations A and B for signing, please

*These declarations should be signed by the person listed in answer to question A3. Where more than one person is identified as the operator, all should sign. Where a company or other body corporate is the operator, an authorised person should sign and provide evidence of authority from the board.*

**Declaration A:** I/We certify

**EITHER –** As evidence of my/our competence to operate this installation in accordance with the EP Regulations, no offences have been committed in the previous five years relating to the environment or environmental regulation.

**OR**- The following offences have been committed in the previous five years which may be relevant to my/our competence to operating this installation in accordance with the regulations:

Signature: _____ Name: _____

Position: _____ Date: _____

**Declaration B:** I/We certify that the information in this application is correct. I/We apply for a permit in respect of the particulars described in this application (including the listed supporting documentation) I/we have supplied. *(Please note that each individual operator must sign the declaration themselves, even if an agent is acting on their behalf.)*

Signature: _____ Name: _____

Position: _____ Date: _____

Signature: _____ Name: _____

Position: _____ Date: _____

# Appendix 2 - Model Permit

This appendix contains a model permit for [ ] installations – see [relevant para in intro] of this note and para 3.6 of the General Guidance Manual on Policy and Procedures .

Notes:

- text in the model permit written in *italics* is advice to regulators.
- text in the model permit in square brackets offers choice to regulators or indicates where information needs to be inserted from the application.
- text bracketed with asterisks (eg *Alarms shall be tested at least once a week*.) may be omitted by a regulator where the past performance of the plant gives the local authority sufficient reassurance about operator compliance – "earned recognition".
- the model permit has been drafted for local authorities in England and Wales. Regulators in Scotland and Northern Ireland will need to amend the legal heading and, where appropriate, references to 'Council'
- references to 'installation' will need to be substituted with 'mobile plant' in relevant cases, and other amendments made accordingly
- the purpose of the activity description is to set down the main characteristics of the activity, including any directly associated activities, so it is clear to all concerned what is being authorised by the permit and therefore what changes would need further approval. Regulators are advised to include a description of any key items of arrestment and monitoring equipment the operator intends to use or is using.
- it should normally be sufficient for records relating to simplified permits to be kept for no more than 18 months. Where, however, as a result of a 'low risk' rating, inspections are undertaken less often, regulators may want to specify a period which ensures the records are available at the next inspection.

[ ] **COUNCIL**
**POLLUTION PREVENTION AND CONTROL ACT 1999**
**Environmental Permitting Regulations 2010 (as amended)**

| **Permit ref. no**: |
|---|

| **Name and address of person (A) authorised to operate the installation ('the operator')**<br><br>**Registered number and office of company** (if appropriate) |
|---|

| **Address of permitted installation (B)** |
|---|

The installation boundary and key items of equipment mentioned in permit conditions are shown in the plan attached to this permit.

**Activity description**

| |
|---|

The operator (**A**) is authorised to operate the activity[4] at the installation (**B**) subject to the following conditions.

**Conditions**

**Emissions and monitoring**

1. No visible particulate matter shall be emitted beyond the installation boundary.

2. The emission requirements and methods and frequency of monitoring set out in Table 1 shall be complied with. Sampling shall be representative.

   Any monitoring display required for compliance with the permit shall be visible to operating staff at all times. Corrective action shall be taken immediately if any periodic monitoring result exceeds a limit in Table 1, or if there is a malfunction or breakdown of any equipment which might increase emissions. Monitoring shall be undertaken or repeated as soon as possible thereafter and a brief record shall be kept of the main actions taken.

   *Where continuous monitors are fitted to show compliance with a numerical limit in Table 1:* All continuous monitors fitted to show compliance with the permit shall be fitted with a [visible] [audible] alarm warning of arrestment failure or malfunction. They shall [activate when emissions reach [75%] of the relevant emission limit in Table 1 and] record automatically each activation. *Alarms shall be tested at least once a week.*

3. All plant and equipment capable of causing, or preventing, emissions and all monitoring devices shall be calibrated and maintained in accordance with the manufacturer's instructions. *Records shall be kept of such maintenance.*

**Aggregates delivery and storage**

[4] listed in [ ] in Part 2 of Schedule 1 to the Environmental Permitting Regulations

4. Dusty materials (including dusty wastes) shall only be stored in [specify storage location] as detailed on the plan attached to this permit and shall be subject to suppression and management techniques to minimise dust emissions.

5. Unused stocking areas should also be controlled to prevent visible dust emissions.

**Silos** ***where used – delete these conditions if no silos are used on site***

6. [*List material*] shall only be stored within the [*list material*] silos.

7. Dust emissions from loading or unloading road tankers shall be minimised by [venting to specify type arrestment plant] [backventing to a delivery tanker fitted with an on-board, truck-mounted relief valve and filtration system] and by connecting transfer lines first to the delivery inlet point and then to the tanker discharge point, and by ensuring delivery is at a rate which does not pressurise the silo.

8. Silos and bulk containers of dusty materials shall not be overfilled and there shall be an overfilling alarm.

9. When loading silos which were new after Jun 2004, deliveries must automatically stop where overfilling or over-pressurisation is identified.

10. Displaced air from pneumatic transfer shall pass through abatement plant prior to emission to air.

**Belt conveying**

11. All dusty materials, including wastes, shall be conveyed using [specify conveyor, level of enclosure and enclosure type]. All transfer points shall be fitted with [specify dust control technique].

**Loading, unloading and transport**

12. No potentially dusty materials (including wastes) or finished products shall arrive on or leave the site other than by use of [specify transport type and dust control technique].

**Roadways and transportation**

13. All areas where there is regular movement of vehicles shall have a consolidated surface capable of being cleaned, and these surfaces shall be kept clean and in good repair. Quarry haul roads are excluded from this provision.

14. Vehicles shall not track material from the site onto the highway.

**Techniques to control fugitive emissions**

15. The fabric of process buildings shall be [maintained dust tight and doors shall be kept closed when not in use] [maintained so as to minimise visible dust emissions] *select according to visible dust potential of each process building*.

**Records and training**

16. Written or computer records of all tests and monitoring shall be kept by the operator for at least [ ] months. They [and a copy of all manufacturer's instructions referred to in this permit] shall be made available for examination by the Council. *Records shall be kept of operator inspections, including those for visible and odorous emissions.*

17. Staff at all levels shall receive the necessary training and instruction to enable them to comply with the conditions of this permit. Records shall be kept of relevant training undertaken.

*The following two conditions are not needed for PPC permits which transferred automatically into the environmental permitting regime by virtue of regulation 69(6) of the 2007 Regulations and regulation 108(4) of the 2010 Regulations. Where permits are issued on or after 6 April 2008 the next two conditions will not automatically apply and need specific inclusion in the permit where required.*

**Best available techniques**

18. The best available techniques shall be used to prevent or, where that is not practicable, reduce emissions from the installation in relation to any aspect of the operation of the installation which is not regulated by any other condition of this permit.

19. If the operator proposes to make a change in operation of the installation, he must, at least 14 days before making the change, notify the regulator in writing. The notification must contain a description of the proposed change in operation. It is not necessary to make such a notification if an application to vary this permit has been made and the application contains a description of the proposed change. In this condition 'change in operation' means a change in the nature or functioning, or an extension, of the installation, which may have consequences for the environment.

| Table 1 - Emission limits, monitoring and related provisions | | | | | |
|---|---|---|---|---|---|
| **Row** | **Substance** | **Source** | **Emission limits/provisions** | **Type of monitoring** | **Monitoring frequency** |
| 1 | Particulate matter | Arrestment equipment, or any point where dust contaminated air is extracted from the process to atmosphere, with exhaust flow >300m$^3$/min. | No visible emission. | Operator observations | At least daily |
| | | | New or replacement arrestment equipment should be provided with a design guarantee that the equipment can meet 50mg/m$^3$ | Recorded indicative monitoring | Continuous |
| | | | Where 50mg/m$^{3\ can}$ be achieved on existing plant by use of improved abatement consumables this should be complied with. | | |
| | | | Where 50mg/m$^3$ cannot be achieved on existing plant by use of improved abatement consumables then the plant should achieve 100mg/m$^3$ | | |
| | | Arrestment equipment, or any point where dust contaminated air is extracted from the process to atmosphere, with exhaust flow >100 – 300 m$^3$/min. | No visible emission. | Operator observations | At least daily |
| | | | New or replacement arrestment equipment should be provided with a design guarantee that the equipment can meet 50mg/m$^3$ | Indicative monitoring | Continuous |
| | | | Where 50mg/m$^3$ can be achieved on existing plant by use of improved abatement consumables this should be complied with. | | |

| | | | | | |
|---|---|---|---|---|---|
| | | | Where 50mg/m$^3$ cannot be achieved on existing plant by use of improved abatement consumables then the plant should achieve 100mg/m$^3$ | | |
| | | Arrestment equipment, or any point where dust contaminated air is extracted from the process to atmosphere, with exhaust flow <100m$^3$/min. | No visible emission | Operator observation<br><br>Or<br><br>Indicative monitoring | At least daily<br><br>Or<br><br>Continuous |
| 2 | Droplets, persistent mist and fume | All emissions to air (except steam and condensed water vapour) | No droplets, no persistent mist, no persistent fume, | Visual observations | At least daily |

Notes:

*All periodic monitoring results shall be checked by the operator on receipt and sent to the Council within 8 weeks of the monitoring being undertaken.*

a) The reference conditions for limits in Table 1 are: 273.1K, 101.3kPa, without correction for water vapour content, unless stated otherwise.

b) All periodic monitoring shall be over a period that produces 3 distinct results, shall be representative, and shall use standard methods.

c) The emission limits do not apply during start-up and shut down. All emissions shall be kept to a minimum during these periods

**Right to Appeal**

You have the right of appeal against this permit within 6 months of the date of the decision. The Council can tell you how to appeal [*or supply details with the permit*]. You will normally be expected to pay your own expenses during an appeal.

You will be liable for prosecution if you fail to comply with the conditions of this permit. If found guilty, the maximum penalty for each offence if prosecuted in a Magistrates Court is £50,000 and/or 6 months imprisonment. In a Crown Court it is an unlimited fine and/or 5 years imprisonment.

Our enforcement of your permit will be in accordance with the Regulators' Compliance Code.