NORTH EAST LINCOLNSHIRE COUNCIL

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Permit with introductory note

Pollution Prevention and Control (England and Wales) Regulations 2000 (as amended)

Installation address

Cemex UK Operations Ltd.
Gilbey Road
Pyewipe
Grimsby
DN31 2SJ

Permit Reference: EP/200200083/V2

Contact Details:

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Introductory note

This introductory note does not form a part of the Permit

The following Permit is issued under Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (as amended) (S.I.2000 No. 1973) ("the PPC Regulations") to operate an installation carrying out one or more of the activities listed in Part B to Schedule 1 of those Regulations, to the extent authorised by the Permit.

The permit includes conditions that have to be complied with. It should be noted that aspects of the operation of the installation which are not regulated by those conditions are subject to the condition implied by Regulation 12(10) of the PPC Regulations, that the Operator shall use the best available techniques for preventing or, where that is not practical, reducing emissions from the installation.

Techniques include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.

Brief description and installation regulated by this permit

Process Coated Road Stone: as prescribed by Section 3.1A of Schedule I of the Pollution Prevention and Control (England and Wales) Regulations 2000 (as amended). Aggregate delivered to site by road vehicles. Bitumen and filler will also de delivered to site in road vehicles. All vehicles entering or leaving the site will be sheeted. Bitumen and filler will be stored on site in suitable silos. Aggregate will be stored in enclosed bays with dust suppression provided by suitable water sprays.
The plant is B G 1000manufactured by Barber Green.
Coated materials will normally be manufactured on a just in time basis, although there will be a hot storage facility to cope with periods of peak demand. Hot materials will be exported from site in tipper bodied road vehicles which will be sheeted prior to leaving the site.

Superseded Licences/Consents/Authorisations relating to this installation		
Holder	**Reference Number**	**Date of Issue**
R M C	**RM/KF/PF**	**16/9/93**
Grimsby Coated Roadstone Gilbey Road, Pyewipe Grimsby, DN31 2SJ	**EP/200200083**	**12th January 2006**

Confidentiality

The Permit requires the Operator to provide information to North East Lincolnshire Council. The Council will place the information onto the public registers in accordance with the requirements of the PPC Regulations. If the operator considers that any information provided is commercially confidential, it may apply to North East Lincolnshire Council to have such information withheld from the register as provided in the PPC Regulations. To enable North East Lincolnshire Council to determine whether the information is commercially confidential, the Operator should clearly identify the information in question and should specify clear and precise reasons.

Variations to the permit

This Permit may be varied in the future. If at any time the activity or any aspect of the activity regulated by the following conditions changes such that the conditions no longer reflect the activity and require alteration, the Regulator should be contacted.

Surrender of the permit

Where an Operator intends to cease the operation of an installation (in whole or in part) the regulator should be informed in writing, such notification must include the information specified in regulation 20(3) of the PPC regulations.

Transfer of the permit or part of the permit

Before the Permit can be wholly or partially transferred to another person, a joint application to transfer the Permit has to be made by both the existing and proposed holders, in accordance with Regulation 18 of the PPC Regulations. A transfer will be allowed unless the Authority considers that the proposed holder will not be the person who will have control over the operation of the installation or will not ensure compliance with the conditions of the transferred Permit.

Responsibility under workplace health and safety legislation

This Permit is given in relation to the requirements of the PPC regulations. It must not be taken to replace any responsibilities you may have under Workplace Health and Safety legislation.

Appeal against permit conditions

Anyone who is aggrieved by the conditions attached to a Permit can appeal to the Secretary of State for the Environment, Food and Rural Affairs. Appeals must be made in accordance with the requirements of Regulation 27 and Schedule 8 of the PPC regulations.

Appeals should be received by the Secretary of State for Environment, Food and Rural Affairs. The address is as follows:

The Planning Inspectorate
Environmental Pollution Appeals
Room 4/19 Temple Quay House
2 The Square, Temple Quay
BRISTOL
BS1 6PN

Please Note

An appeal bought under paragraph (1) (c) or (d) in relation to the conditions in a permit will not be suspend the effect of the conditions appealed against; the conditions must still be complied with.
In determining an appeal against one or more conditions, the Act allows the Secretary of State in addition to quash any of the conditions not subject to the appeal and to direct the local authority either to vary any of these other conditions.

End of introductory note

Permit issued under the Pollution Prevention and Control Regulations 2000

Permit Number EP/200200083/V1

North East Lincolnshire Council (the Regulator) in exercise of its powers under Regulation 10 of the Pollution Prevention and Control Regulations 2000 (S.I. 2000 No. 1973) hereby permits.

Cemex UK Materials Ltd ("the operator"),

Whose registered office is

Cemex House
Cold Harbour Lane
Thorpe Eggham
Surry
TW20 8TD

To operate an installation at

Gilbey Road
Pyewipe
Grimsby
DN31 2SJ

to the extent permitted by and subject to the conditions of this Permit and within the boundary identified in condition A

Signed

Tony Nuel
Neighbourhood Improvement Manager.

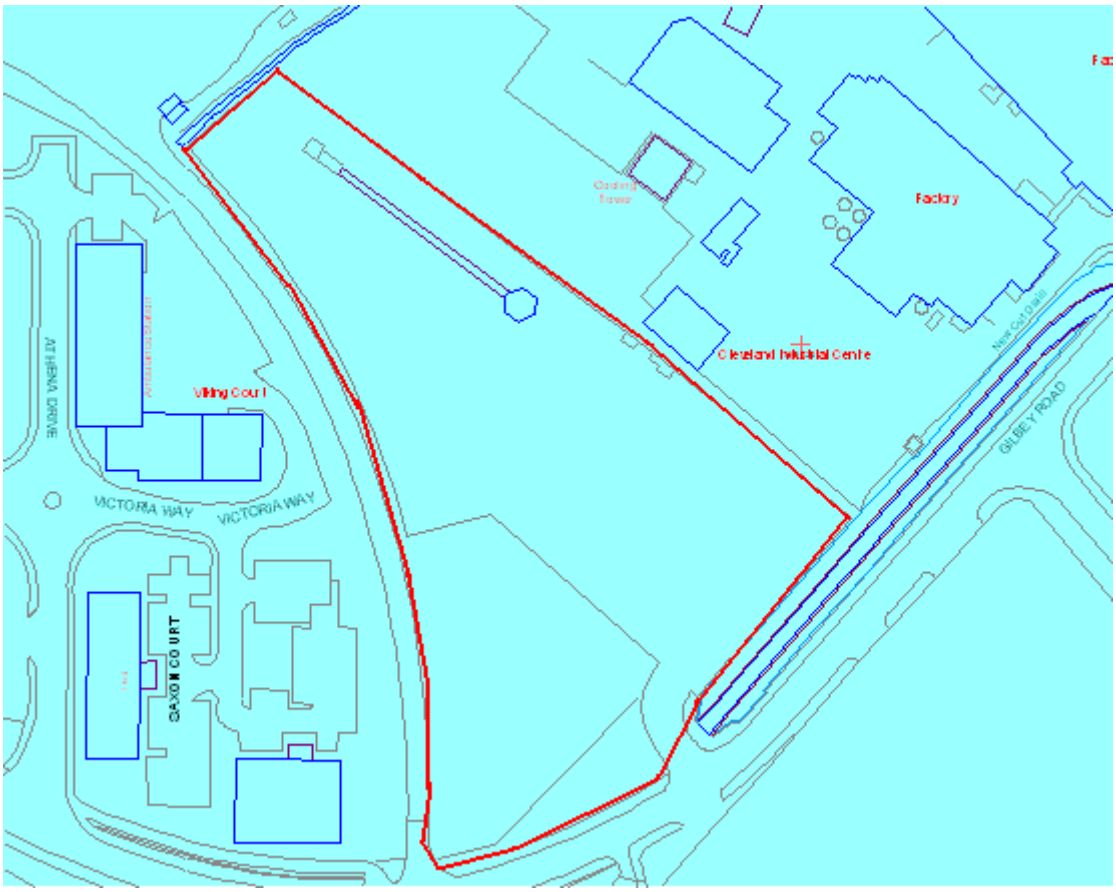
Authorised to sign on behalf of
North East Lincolnshire Council

Dated

CONDITIONS:

Extent and limit of the installation

The operator is permitted to carry out the activities and/or associated as specified and within the boundary shown on the plan below:-



Process Coated Road Stone: as prescribed by Section 3.5 of Schedule 1 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (as amended). Aggregate delivered to site by road vehicles. Bitumen and filler will also de delivered to site in road vehicles. All vehicles entering or leaving the site will be sheeted. Bitumen and filler will be stored on site in suitable silos. Aggregate will be stored in enclosed bays with dust suppression provided by suitable water sprays.
The plant is B G 1000manufactured by Barber Green.

Coated materials will normally be manufactured on a just in time basis, although there will be a hot storage facility to cope with periods of peak demand. Hot materials will be exported from site in tipper bodied road vehicles which will be sheeted prior to leaving the site.

5.1 MONITORING SAMPLING AND MEASUREMENT OF EMISSIONS

The emission limit values and provisions described in this section are achievable using best available techniques. Monitoring of emissions shall be carried out in accordance with the methods specified in this section or by an equivalent method agreed by the authority.

The reference conditions for pollutant concentrations are 273K, 101.3KPa without correction for water vapour contact except for direct drying processes when waste or recovered oil is used as a fuel. In these circumstances emissions should be corrected to dry gas conditions.

Table 2: Emission limits, monitoring and other provisions

Row	Total particulate matter	Emission limits/ provisions	Type of monitoring	Monitoring frequency (subject to paragraphs 5.11 and 5.12)
1	Existing roadstone coating plant*, except where new or replacement arrestment equipment is fitted	Where currently achieved: 50 mg/m^3	Either 6 monthly monitoring in accordance with the main procedural requirements of BS ISO 9096:2003. OR annual monitoring in accordance with the main procedural requirements of BS ISO 9096:2003 in conjunction with continuously recorded indicative monitoring	6 monthly Or Annual in conjunction with continuous
		Where 50 mg/m^3 currently achieved, but only inconsistently: 100 mg/m^3 **PLUS** efforts should be made to improve consistency.		
		Where 50 mg/m^3 currently not achieved: 100 mg/m^3		
2	New roadstone coating plant and roadstone coating plant where new or replacement arrestment equipment is fitted	50 mg/m^3		
3	All authorised emission points	No abnormal emission	Operator observations	At least daily
4	Silo inlets and outlets	No visible emission	Operator/driver observations Record start and finish times	Every delivery
5	Arrestment equipment** with exhaust flow >300 m^3/min	Designed to achieve 50 mg/m^3	**Recorded** indicative monitoring	Continuous
6	Arrestment equipment** with exhaust flow >100 m^3/min	Designed to achieve 50 mg/m^3	Indicative monitoring to demonstrate that the arrestment equipment is functioning correctly	Continuous
7	Arrestment equipment** with exhaust flow =/<100 m^3/min	No visible emission	Operator observations OR Indicative monitoring to show that the equipment is functioning correctly	At least daily OR Continuous

* The position will be revisited in 2 years in the light of practical experience.

** where the plant is discharging to the external environment (other than that serving roadstone coating plant and silos)

Row	Chloride (expressed as hydrogen chloride)	Emission limit	Type of monitoring	Monitoring frequency (subject to paragraphs 5.11 and 5.12)
8	Combustion of waste or recovered oil where the net rated thermal input of the appliance is 3 MW or more	100 mg/m^3	Determined by fuel analysis plus Annual manual extractive test subject to paragraph 5.10.	Annual

Row	Fluoride (expressed as hydrogen fluoride)	Emission limit	Type of monitoring	Monitoring frequency (subject to paragraphs 5.11 and 5.12)
9	Combustion of waste or recovered oil where the net rated thermal input of the appliance is 3 MW or more	5 mg/m^3	Determined by fuel analysis plus Annual manual extractive test subject to paragraph 5.10	Annual

Row	Metals and their salts	Sub-stance	Emission limit (as the metal)	Type of monitoring	Monitoring frequency (subject to paragraphs 5.11 and 5.12)
10	All applications using recovered oil or waste oil burners	Lead	5 mg/m^3	Determined by fuel analysis	Annual
				PLUS	PLUS
				Manual extractive test subject to paragraph 5.10	Annual
11	Combustion of waste or recovered oil where the net rated thermal input of the appliance is 3 MW or more.	Cadmium	0.5 mg/m^3	Determined by fuel analysis	Annual
		Nickel	1 mg/m^3		
		Lead	5 mg/m^3		
		Chromium	Total emission in combination 1.5 mg/m^3		
		Copper			
		Vanadium		PLUS	PLUS
				Manual extractive test subject to paragraph 5.10	Annual

Row	Dioxins	Emission limit (expressed as ITEQ)	Type of monitoring	Monitoring frequency (subject to paragraphs 5.11 and 5.12)
12	All processes using recovered or waste oil burners in accordance with the requirements of WIR as appropriate	In accordance with the requirements of WIR as appropriate	In accordance with the requirements of WIR as appropriate	In accordance with the requirements of WIR as appropriate

Row	PCBs	Maximum concentration of PCBs in fuel	Type of monitoring	Monitoring frequency (subject to paragraphs 5.11 and 5.12)
13	All processes burning waste or recovered fuel oil	10 ppm	Fuel analysis every 3 months by supplier and once a year by the operator	Annual

Row	Sulphur dioxide	Maximum concentration of Sulphur in fuel	Type of monitoring	Monitoring frequency (subject to paragraphs 5.11 and 5.12)
14	All processes burning waste or recovered oil	1% wt/wt	Determined by fuel analysis	Annual
15	Where gas oil is used and for all applications in which the Waste or Recovered Oil meets the definition of gas oil as defined in the Sulphur Content of Certain Liquid Fuels Directive (1999/32/EC)	0.2% wt/wt (before 01/01/2008) 0.1% wt/wt (from 01/01/2008)	Certificate from supplier	

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5.2 The operator will keep records of inspections, tests and monitoring, including all non-continuous monitoring, inspections and visual assessments for a minimum of 2 years. The log to be made available to the local authority inspector at all times.

Any historic records kept off-site shall be made available for inspection within one working week of any request by the enforcing authority.

5.3 The authority to be notified, at least seven days in advance, of all monitoring to be carried out together with details of the provisional times and dates, the pollutants to be tested and the methods used.

The results of non-continuous emission testing to be forwarded to the authority within 8 weeks of the completion of the sampling.

Adverse results from any monitoring activity (continuous and non-continuous) should be investigated by the operator as soon as the monitoring data has been obtained/received. The operator should:

- identify the cause and take corrective action
- record the details of the cause and extent of the problem and the action taken by the operator to rectify the situation
- a retest to demonstrate compliance as soon as possible and the retest results to be notified to the local authority.
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VISIBLE AND ODOUROUS EMISSIONS

5.4 Emissions from combustion processes shall be free from visible smoke and in any case shall not exceed the equivalent of Ringelmann Shade 1 as described in BS 2742:1969.

All reasonably practicable steps to be taken to minimise the duration and visibility of visible emissions during start-up and shut down and changes to fuel and combustion load.

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

All emissions to air to be free from droplets.

There shall be no visible emissions of airborne dust from the process or its operations across the site boundary.

Visual and olfactory assessments of emissions will be made frequently and at least once a day during normal operations. The time ,location and results to be recorded in the site log.

5.5 In the case of abnormal emissions, malfunctions or breakdown leading to abnormal emissions the operator will.

Investigate and undertake remedial action immediately

Adjust the process or activity to minimise those emissions: and

Promptly record the events and action taken

The authority will be informed without delay. 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, e.g. bag filtration plant or scrubber units.

5.6 Continuous indicative monitoring is the most efficient method of determining the plants operation with respect to its permitted emissions.

5.7 All new continuous monitoring equipment will be designed for less than 5% downtime over a 3-month period. Where continuous monitoring is required it will be carried out as follows.

All continuous monitoring readings will be on display to appropriately trained staff.

Instruments will be fitted with audible and visible alarms, situated appropriately to warn the operator of arrestment plant failure.

The activation of alarms will be automatically recorded.

All continuous monitors will be operated, maintained and calibrated in accordance with the manufactures instructions. The relevant maintenance and calibration will be recorded.

5.8 Calibration and compliance monitoring will meet the following previsions.

Non-continuous emissions monitoring of particulate matter will be carried out according to the main procedural requirements of BS ISO 9096: 2003. with averages taken over operating periods, excluding start-up and shutdown.

No results will exceed the emissions concentration limits specified.

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

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

5.10 Only low sulphur oil or clean fuel oil (as defined in AQ17(07) will be used in this plant. It must meet the requirements of Table 2 row 15.

5.11 Where non-continuous monitoring quantitative monitoring is required, the frequency may be varied where there is a consistent compliance with emission limits.

512 The frequency of testing should be increased as part of the commissioning of new and or substantial changes to the process, or where emission levels are near to or approach the emission concentration limit.

5.13 Sampling points on new plant will be designed to comply with the British or equivalent standard. BS ISO 9096: 2003, BE En 13284 or BS ISO 12141:2002 for sampling particulate matter from stacks.

5.14 The arrestment plant serving the coated roadstone plant will achieve an emission limit of 50mg/m3 for particulate matter.

5.15 All arrestment plant with an exhaust flow of over 300m3/min will be continuously indicatively.

All arrestment plant with an exhaust flow of over 100m3/min shall be continuously indicatively monitored for particulate matter. It will be designed to meet the particulate matter emission limit of 5omg/m3.

All arrestment plant with an exhaust flow of less than 100m3/min shall be designed to prevent visible emissions of dust.

Where emissions do not exceed 50mg/m3 without arrestment plant being needed, and this is demonstrated by a single isoperimetric sampling exercise undertaken in accordance with 5.8, continuous monitoring will not be required.

EMISSIONS FROM SILOS/STORAGE TANKS

516 All silo filtration plant will be designed to operate to an emission standard of less than 10mg/m^3 for particulate matter.

5.17 Silo systems and storage tanks require the following inspections:

Filter cleaning method	Frequency of visual inspection
Fitted with reverse jets	Once a month
Fitted with mechanical shakers	Once a week
Requiring manual shaking	Daily and prior to any delivery being made

The outlets should be checked for signs that emissions have occurred. The equipment should also be checked for defects in the air flow or the cam shakers. If emissions are detected then corrective action should be taken promptly and before another delivery takes place.

Reduced inspection frequency of bag filter (or cartridge) arrestment plant may be appropriate as follows:

(a) where pressure drop sensors or other continuous monitors are used to monitor the arrestment plant, such monitors should be inspected according to manufacturer's recommendations to ensure their proper operation.

(b) when continuous camera operation enables observations of all emission points from the arrestment plant and pressure relief vents.

(c) for filters fitted with reverse jet or with mechanical shakers where operating experience has demonstrated satisfactory operation of the arrestment plant.

(d) when the process operation is infrequent.

6 Control techniques

Summary of best available techniques

6.1 The following table 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 5**. 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 4: Summary of control techniques

Sources of particulate matter	Control technique
Loading and unloading processes Conveyor transfer points	Within buildings Suppression Reduced drop heights • use of variable height conveyors • use of chutes Dust arrestment (loading area) • bag filters • cartridge filters
Double handling transfer points	Site and process design
Delivery from road tanker to silo • it is common for overcharging of silos to cause the pressure relief valve to lift, thereby causing an unacceptable emission.	Process control, for example, • High level monitor with alarms. • Tanker delivery controls. • Automatic protection system.
Silos	Dust arrestment • bag filters • cartridge filters
Raw material storage	Storage silos Within buildings
Conveyors, conveyor transfer points	Containment • wind boards Appropriate siting • away from site boundary especially if near residential or other sensitive receptors
Size reduction, drying and screening processes	Within process buildings Dust arrestment • bag filters / cartridge filters
Roadways including haulage roads	Suppression • site and process design
External operations Conveyors Roadways	Appropriate siting • away from site boundary especially if near residential or other sensitive receptors Wind dynamics management • use of fencing, bunding, profiling etc

Table 4: Summary of control techniques

Sources of particulate matter	Control technique
Vehicles - bodies and wheels	Wheel-wash and under-body vehicle wash
Lorries, trains	Covering • dust covers

Bitumen fume and odour (volatile organic compounds)	Control techniques
Storage and handling	• Strategic siting of storage tanks • back venting deliveries • temperature controls • controls to prevent overfilling when filling storage tanks

Flue gas emissions	Control techniques
Particulate matter	Abate emissions
Sulphur oxides	Limit sulphur in fuel
Nitrogen oxides	Low NOx burners or Limit preheat temperatures
Carbon monoxide	Good combustion
Hydrogen chloride/fluoride	Limit chloride and fluoride in fuel
Volatile organic compounds	Good combustion
Metals and their salts	Limit metals in fuel Particulate arrestment
Dioxins	Good combustion Particulate arrestment

Techniques to control emissions from contained sources

6.2 **The control techniques described below address the sources of particulate matter and bitumen fume and odour.**

Silos

6.3 The silo management system includes the high level alarms, arrestment plant and pressure relief device. If best practice is being applied then any failure of the silo management system leads to full investigation of the operation of the plant and equipment. Continuous high level monitoring systems are currently available for use in storage silos. They may be used telemetrically to monitor stock within the silo. They may also be used to automatically stop delivery of material to the silo. It is expected that such systems will become more widely used in the future.

6.4 Careful delivery by trained personnel will avoid materials being blown into silos at a rate which is likely to result in pressurisation of the silo, especially towards the end of the delivery when the quantity of material entering the ducting is reduced. If deliveries are accepted from tankers without on board relief valve and filtration systems, particular care to avoid pressurisation of silos when venting air through the silo at the end of the delivery is needed.

6.5 The following measures relating to arrestment plant on silos and other silo management techniques are only applicable where the silo vents to the external environment or where silo emissions may escape from inside a building into the external environment.

- All dusty or potentially dusty materials should be stored in silos, in confined storage areas within buildings, or in fully enclosed containers / packaging. Where the storage is open within a building, then suitable precautions should be taken to prevent wind whipping.
- When delivery to a silo or bulk storage tank takes place, displaced air should either be vented to suitable arrestment plant (for example cartridge/bag filters) or backvented to the delivery tanker, in order to minimise emissions. Arrestment plant fitted to silos should be of sufficient size (and kept clean) to avoid pressurisation during delivery.
- In order that fugitive emissions are minimised during the charging of silos, transfer lines should be securely connected to the silo delivery inlet point and the tanker discharge point, in that order. Tanker drivers should be informed of the correct procedures to be followed.
- Bulk storage tanks and silos containing dry materials should be equipped with audible and/ or visual high level alarms, or volume indicators, to warn of overfilling. The correct operation of such alarms should be checked in accordance with manufacturers' instructions. If manufacturers instructions do not specify, then the check should be weekly or before a delivery takes place, whichever is the longer interval.
- If emissions of particulate matter are visible from ducting, pipework, the pressure relief device or dust arrestment plant during silo filling, the operation should cease; the cause of the problem should be rectified prior to further deliveries taking place. Tanker drivers should be informed of the correct procedure to be followed.
- Seating of pressure relief devices on silos should be checked at least once a week, or before a delivery takes place, whichever is the longer interval.
- Immediately it appears that the device has become unseated during silo filling, no further delivery should take place until corrective action has been taken. The pressure relief device should be examined to check for defects before being re-set and a replacement fitted if necessary. Tanker drivers should be informed of the correct procedure to follow.
- Deliveries to silos from road vehicles should only be made using tankers with an on-board (truck mounted) relief valve and filtration system. This means that venting air from the tanker at the end of a delivery will not take place through the silo. Use of alternative techniques may be acceptable provided that they achieve an equivalent level of control with regard to potential for emissions to air.
- Care should be taken to avoid delivering materials to silos at a rate which is likely to result in pressurisation of the silo. If compressed air is being used to blow powder into a silo then particular care is required towards the end of the delivery when the quantity of material entering the ducting is reduced and hence the air flow is increased.
- All new silos should be fitted with an automatic system to cut off delivery in the event of pressurisation or overfilling. Use of alternative techniques may be acceptable provided that they achieve an equivalent level of control with regard to potential for emissions to air.

Aggregate storage (non-mobile plant)

6.6 In areas where aggregate is being offloaded appropriate dust control measures may include the following:

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

- For new processes, where the plant is at a quarry, it should be fed with stone directly by conveyor from storage hoppers, bays or covered stores, except for material imported onto site which may be fed from refeed hoppers.
- For existing processes where plant is at a quarry, storage of stone should comply with paragraph **6.8** and all feed hoppers should be located within a structure consisting of at least 3 walls and a roof.

6.7 For plants that are not situated at a quarry authorised in its own right (for example, satellite depots and plant at sand and gravel pits) the following provisions should apply:

- For new plant supplied mainly by road, the day to day stocks of materials, except sand or washed product, should be held in storage bays within a structure consisting of at least three walls and a roof, and of sufficient capacity to enable normal daily requirements to be met without recourse to the use of externally stored material. Stocks in excess of this provision may be stored in the open so as to comply with the provisions of paragraphs **6.8** and **6.9**. All feed hoppers should be located within a structure consisting of at least three walls and a roof.
- For existing plant, and for new plant supplied mainly by rail or ship, storage of stone should comply with paragraph **6.8** and all feed hoppers should be located within a structure consisting of at least 3 walls and a roof.

6.8 No material should be stored in the open except for:

(a) material that has been screened to remove material 3 mm and under;
(b) sand;
(c) scalpings;
(d) material used for road sub-bases (commonly known as "MOT material") that has been conditioned before deposition;
(e) crusher run material or blended material that has been conditioned before deposition;
(f) material under 3 mm that is in excess of the internal storage capacity (the internal storage capacity should be approved by the local enforcing authority). Where the only practicable option for the storage of material under 3 mm is external stockpiles, particularly careful consideration should be given to the measures discussed below.

Stockpiles and ground storage

6.10 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.

6.11 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.

Conveying

6.12 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:

- Where dusty materials are conveyed, the conveyor (which might be a bucket elevator) and any transfer points should be enclosed to such an extent as to minimise the generation of air-borne dust.
- Where dried materials are handled, transfer points should be ducted to arrestment plant.
- 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.

Process operations

6.13 Emissions from the process operations covered by this note comprise fine particulate matter, in the form of dust, the products of combustion and odour. The control of dust emissions from these processes is mainly by the use of enclosures and extraction to particulate arrestment plant. Internal transport of dusty materials should be carried out so as to prevent or minimise airborne dust emissions, as this then reduces the potential for fugitive emissions.

- All hot storage bins should have level indication and any overflow chutes should have dust arrestment facilities fed into the main dust arrestment system.
- Equipment for the crushing, grinding and screening of minerals should be fitted with dust extraction which is vented to air through arrestment plant.
- Plant should be designed and operated so that emission of dust during the discharge of surplus dried stone or filler is minimised.

Bitumen handling

6.14 In order to minimise emissions of fume and the associated odour, all bitumen and tar should be stored and handled within the appropriate temperature range for its grade. Details of suitable storage and handling temperatures are given in **Appendix 2** [7].

- The temperature gauge on all hot binder storage tanks should be displayed. A high temperature trip device, to prevent the binder overheating, should be operational at all times.
- Where practicable in relation to the viscosity and temperature of material being handled, bulk bitumen and tar storage tanks should be fitted with a high-level alarm or volume indicator to warn of overfilling. Where the fitting of such devices is not practicable, procedures to prevent overfilling should be agreed with the regulator.

Techniques to control fugitive emissions

6.15 Fugitive dust emissions should be prevented whenever practicable. When this is not practicable emissions should be controlled at source by measures agreed between the regulator and the operator. Examples include correct storage of raw materials, organising the process in such a way that spillage is avoided, and maintaining 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 visible emissions, self-closing doors and close-fitting entries and exits for conveyors are among the options that may be used. 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. If necessary, emissions should be controlled and abated using suitable arrestment equipment.

- All process buildings should be made as dust tight as is necessary to prevent visible emissions.
- All process buildings should be cleaned regularly, according to a written maintenance programme, to minimise fugitive emissions.
- 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 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. (N.B. 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.
- Where particulate matter emissions are abated using a wet scrubber, the scrubber should be regularly inspected and maintained. Action should be taken to deal with any blockages that occur due to accumulation of solids, for example adding flocculating agents to the liquor to settle the solids out.

Loading, unloading and transport

6.16 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.

6.17 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.

6.18 Rail wagons that are either aerodynamically designed to prevent or virtually 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.

A load that contains a significant amount of material less than 6mm is considered to have a much higher potential for dust emissions during transit than a load containing a minimal amount of this size fraction.

6.19 Where specific techniques are referred to below the regulator should agree 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) or for mineral loads with a minimal content of particles below 6mm, water suppression will normally be sufficient.
  - For longer journeys or where a higher proportion of fine material is being transported then 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 prevent or virtually 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 closed tankers or sheeted vehicles, or the materials conditioned with water.

6.20 Where plant is situated close to populated areas, and particularly when tar is used as a binder, it may be necessary to abate emissions of binder fume to prevent odour problems during delivery. The following options may be useful and should be considered in such circumstances:

(a) deliveries from road and rail vehicles, wherever practicable having regard to the availability of suitably equipped vehicles, may be pumped into bulk storage tanks and displaced air backvented to the delivery tanker. Alternatively

(b) fume arising from storage tank vents may be ducted to the drier burner provided it is in operation; this should combust any odour arising.

6.21 Emissions of bitumen fume from deliveries can be reduced by fitting ground based pumps. It is considered that such pumps should only be required in cases where there is an existing or reasonably anticipated odour problem arising from such deliveries. Where lorry based compressors are used to discharge the delivery, emissions of odour and fume can be reduced; one procedure which can be used in some cases, when clearing hose and lines, is to use two short bursts of air rather than one long one. The procedure to be used should be agreed by the regulator.

Roadways and transportation

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

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

6.24 On some sites wheel-cleaning facilities may be useful to prevent dust being carried off the site. Where the plant is co-located with a quarry which has wheel wash and underbody wash facilities available, these might be used where necessary. If a plant is co-located with a quarry which does not have wheel-wash facilities, it may not be appropriate to install them. 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.

Air quality

Ambient air quality management

6.25 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 Part B 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 Part B 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. More guidance on this is provided in paragraph 360 of the Air Quality Strategy which gives the following advice:

Dispersion and dilution

6.26 Pollutants that are emitted via a stack require sufficient dispersion and dilution in the atmosphere to ensure that they ground at concentrations that are harmless. This is the basis upon which stack heights are calculated using HMIP Technical Guidance Note D1 (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. It is necessary that the assessment also take into account the relevant air quality standards that apply for the emitted pollutants.

Revised stack height calculations should not be required unless it is considered necessary because of a breach or serious risk of breach of an EC Directive limit value and because it is clear from the detailed review and assessment work that the Part B process itself is a significant contributor to the problem.

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. D1 relies upon the unimpeded vertical emission of the pollutant. A cap or other restriction over the stack impedes the vertical emission and hinders dispersion. For this reason where dispersion is required such flow impeders should not be used. A cone may sometimes be useful to increase the exit velocity and achieve greater dispersion.

An operator may choose to meet tighter emission limits in order to reduce the required stack height.

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. However, if the emission point is within a designated air quality management area with respect to PM10, then this may have to be reviewed.

Stacks, vents and process exhausts

6.27 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. Stacks and ductwork should be leakproof.

6.28 The dispersion from all stacks and vents can be impaired by low exit velocity at the point of discharge, or deflection of the discharge. Unacceptable emissions of droplets could possibly occur from wet arrestment plant where the linear velocity within the associated ductwork exceeds 9 m/sec. The use of mist eliminators reduces the potential for droplet emissions.

- Where a linear velocity of 9 m/sec 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.
- Flues and ductwork should be cleaned to prevent accumulation of materials, as part of the routine maintenance programme.
- Exhaust gases discharged through a stack or vent should achieve an exit velocity which is normally greater than 15 m/sec during normal operating conditions to achieve adequate dispersion. A lower velocity may be acceptable provided it achieves adequate dispersion and dilution in accordance with paragraph **6.26** above.
- A minimum discharge velocity should be required in order to prevent the discharged plume being affected by aerodynamic downwash.
- Stacks or vents should not be fitted with any restriction at the final opening such as a plate, cap or cowl, with the exception of a cone which may be necessary to increase the exit velocity of the emissions.

Management

Management techniques

6.29 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
- it is good practice to ensure that spares and consumables are available at short notice in order to rectify breakdowns 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.

- Spares and consumables - in particular, those subject to continual wear - should be held on site, or should be available at short notice from guaranteed local suppliers, so that plant breakdowns can be rectified rapidly.

Appropriate management systems

6.30 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 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. Operators may also find that an EMS will help identify business savings.

Regulators should use their discretion, in consultation with individual 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/LA-PPC permit to require an EMS for purposes other than LAPC/LA-PPC compliance. For further information/advice on EMS refer to EMS Additional Information in **Section 8**.

Training

6.31 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.

- Training of all staff with responsibility for operating the process should include:
  - awareness of their responsibility under the permit
  - minimising emissions on start up and shut down
  - action to minimise emissions during abnormal conditions
- The operator should maintain a statement of training requirements for each operational post and keep a record of the training received by each person whose actions may have an impact on the environment. These documents should be made available to the regulator on request.

Maintenance

6.32 Effective preventative maintenance should be employed on all aspects of the process including all plant, buildings and the equipment concerned with the control of emissions to air. In particular:

- A written maintenance programme should be provided to the regulator with respect to pollution control equipment; and
- A record of such maintenance should be made available for inspection.

END OF PERMIT