

PERMIT REFERENCE: PPC 025

Sandvik Hard Materials Ltd

Pollution Prevention and Control Act 1999  
Pollution Prevention and Control (England and Wales)  
Regulations 2000 as amended

<b>Process Address</b>	PO Box 89 Torrington Avenue Coventry CV4 9XG
<b>Process Type</b>	Zinc and Zinc Alloy Activity
<b>Current Operator</b>	Sandvik Hard Materials Ltd PO Box 89 Torrington Avenue Coventry CV4 9XG
<b>Previous Operator</b>	n/a
<b>Date of Application</b>	1 <sup>st</sup> April 2004
<b>Date Permit Issued</b>	8 <sup>th</sup> March 2005

**POLLUTION PREVENTION & CONTROL ACT 1999  
POLLUTION PREVENTION & CONTROL (ENGLAND AND WALES)  
REGULATIONS 2000**

**DOCUMENT A : PERMIT**

**Sandvik Hard Materials Ltd**

Reference Number **PPC/025**.

Coventry City Council ("the Council") in accordance with Section 10(2) of the Pollution Prevention & Control (England and Wales) Regulations 2000 ("The Regulations"), hereby permits:

**Sandvik Hard Materials Ltd**

Whose registered office is:

**Sandvik Hard Materials Ltd  
PO Box 89  
Torrington Avenue  
Coventry  
CV4 9XG**

**Registered in England No: 363876**

to operate a Part B installation involving a zinc and zinc alloy activity, as prescribed in Section 2.2 Part B of Schedule 1 to The Regulations, at:

**Sandvik Hard Materials Ltd  
PO Box 89  
Torrington Avenue  
Coventry  
CV4 9XG**

The permit is subject to the conditions specified in this document consisting of 15 pages and comprising documents A, B and C, plans PPC/025/A, PPC/025/B, PPC/ 025/C, PPC/ 025/D and Appendix 1.

Signe



Alan Bennett, Head of Environmental Health  
A person authorised to sign on behalf of the Council

Dated .....8 March 2005.....

## **SCOPE**

The installation comprises not just any relevant unit carrying out a Part B activity listed in Schedule 1 to the Regulations, but also directly associated activities which have a technical connection with that activity and which could have an effect on pollution.

All pollutant concentrations shall be expressed at reference conditions of 273K and 101.3kPa, without correction for water vapour content.

Technical Guidance documents used in the preparation of this document:

- Secretary of States Guidance Note PG2/7(04) – Zinc and Zinc Alloy Processes
- Secretary of States Guidance Note PG2/4(04) – Iron Steel and Non-Ferrous Metal Foundry Processes
- Secretary of State's Guidance – General Guidance Manual on Policy and Procedures for A2 and B installations. ISBN 0-85521-028-1

Date Annual Fee Required: 1st April of each financial year

Date For Full Compliance: Date permit issued

Permit Prepared By: Matthew Pegg

Permit Checked By: Rachel King

## **LEGISLATION**

1. Pollution Prevention and Control Act 1999.
2. Pollution Prevention and Control Regulations 2000 as amended, schedule 1 as amended

## **BRIEF DESCRIPTION OF THE INSTALLATION REGULATED BY THIS PERMIT**

Definitions referred to in this permit

- An **Activity** is an industrial activity forming part of an installation. Different types of activity are listed within Schedule 1 of the PPC Regulations and are broadly broken down into industrial sectors. Other “associated” activities may also form part of an installation.
- An **Installation** comprises not just any relevant unit carrying out a B activity listed within Schedule 1 to the PPC Regulations, but also directly associated activities which have a technical connection with a schedule 1 activity and which could have an effect on pollution.
- An **Operator** is the person (eg a company or individual) who has control over the operation of an installation.
- **Volatile organic compound (VOC)** shall mean any organic compound having at 293K a vapour pressure of 0.01 kPa or more, or having a corresponding volatility under the particular conditions of use.
- **Organic solvent** shall mean any VOC which is used alone or in combination with other agents, and without undergoing a chemical change, to dissolve raw materials, products or waste materials, or is used as a cleaning agent to dissolve contaminants, or as a dissolver, or as a dispersion medium, or as a viscosity adjuster, or as a surface tension adjuster, or a plasticiser, or as a preservative.
- **Stack** includes structures and openings of any kind from or through which substances may be emitted to air.
- **Duct** includes enclosed structures through which gaseous substances may be conveyed.
- **Process vent** includes open terminations of ducts.
- **Authorised Officer** shall mean an officer authorised to carry out duties under the Pollution Prevention and Control Act 1999 and subordinate regulations
- **Logbook** shall mean any electronic or paper means of storage of the required information as agreed by the regulator
- **Local Authority** shall mean Coventry City Council
- "m" means metre
- "m/s" means metres per second

The general location of the Permitted Process is shown on the attached plan PPC/025/A in addition to the installation boundary that is marked by a red-hatched line.

### **Description of Installation**

The installation covers two sites referred to as the north site that deals with the production of hard metal powder and south site that uses hard metal powder from the north site to produce the final hard metal product.

## **North Site**

Sintered hard metal scrap is delivered to the site and undergoes a process of cleaning and sorting. Virgin zinc segments are also delivered to the site. Zinc and the hard metal scrap is then melted at 950 degrees centigrade in one of eight sealed batch furnaces fitted with a condenser in an argon atmosphere.

Zinc is then removed from the crucibles by vacuum distillation involving the use of four Leybold and Rootes vacuum pumps and paper element type filters.

The remaining product in the furnaces is friable hardscrap. This is then sieved and milled with hard metal powder being produced.

## **South Site**

Hard metal powder is delivered to the south site in sealed containers for the subsequent production of hard metal products.

The hard metal powder is then pressed by one of the following methods:

- mechanical pressing
- dry bag pressing
- extrusion pressing

The pressed hard metal powder is then machined using cutting tools and grinding wheels in order to reduce the products to the required size.

The pressed and shaped product is then sintered in one of six Sandvik DMK furnaces or one of 5 sinter hot isostatic pressure furnaces.

Following sintering the hard metal products are then subject to grinding with resin bonded diamond grinding wheels to machine the product to the required dimensions.

The final products are then cleaned by one of two methods:

- rumbling through ground corn (maize drying)
- use of hot air blowers

In some cases prior to sintering the hard metal dough will contain propylene glycol. In this case the drying of the pressed rods and subsequent evaporation of propylene glycol is permitted to take place.

**Table 1**

**List of Process Areas within the Installation and Associated Emission Points, Pollutants of Concern and Abatement Plant Required**

<b>Row Number</b>	<b>Area/Machinery Identification</b>	<b>Pollutants Emitted</b>	<b>Emission Limit in Permit</b>	<b>Abatement Plant Required</b>
<b>1</b>	<b>Vent 3 on plan PPC/025/B serving sorting area on north site</b>	<b>Particulates</b>	<b>20 mg/m3</b>	<b>Bag Filtration</b>
<b>2</b>	<b>Vent 7 on plan PPC/025/B serving sieving and milling equipment in powder room on north site</b>	<b>Particulates</b>	<b>20 mg/m3</b>	<b>Bag Filtration</b>
<b>3</b>	<b>Vents 18 to 37 inclusive, and 45 on plan PPC/025/C serving the machining operations on pressed and sintered hard metal powder on south site</b>	<b>Particulates</b>	<b>20 mg/m3</b>	<b>Bag Filtration</b>

## **DOCUMENT B**

### **CONDITIONS**

All conditions shall have immediate effect unless stated otherwise.

#### **1.0 EMISSION LIMITS AND CONTROLS**

- 1.1 All emissions to air other than steam or water vapour shall be free from droplets and from persistent mist and persistent fumes.
- 1.2 All emissions to air shall be free from offensive odour at the installation boundary (north and south sites).
- 1.3 The atmospheric emissions from the:
  - local extract ventilation system serving the sorting area of the warehouse on the north site (see table 1 above)
  - local extract ventilation system serving the sieving and milling equipment in the powder room on the north site (see table 1 above)
  - the local extract ventilation system serving the machining operations on pressed hard metal powder and sintered hard metal on the south site (see table 1 above)

shall not exceed the following emission limits expressed as 15-minute mean concentrations:

  - Particulate Matter, 20mg/m<sup>3</sup>
- 1.4 Monitoring to demonstrate compliance with clause shall take place once in every 12-month period.
- 1.5 At least 7 days prior to the monitoring required to demonstrate compliance with clause 1.3 the operator shall notify the local authority of the provisional date and time of the monitoring, the pollutants to be tested for and methods to be used.
- 1.6 The results of monitoring to demonstrate compliance with clause 1.3 shall be submitted to the local authority within 8 weeks of the monitoring taking place.
- 1.7 The introduction of dilution air to achieve the emission concentration limits in this permit is not permitted. Exhaust flow rates should be consistent with the efficient capture of emissions.

#### **2.0 MONITORING, SAMPLING AND MEASUREMENT OF EMISSIONS**

- 2.1 Each batch furnace emission point (north site) shall be visually inspected for oil mist emissions at least twice a week. The visual assessments must take place at times when the vacuum pumps serving the furnaces are in operation.

- 2.2 A weekly visual assessment must be made of the dust emissions from the bag filter equipment serving the milling and sieving process in the powder room and the sorting area of the warehouse (north site), the cartridge and cartridge and cyclone type filters serving the soft machining area (south site), and the electromagnetic filters serving the grinding area (south site).
- 2.3 Any adverse emissions/results noted during the monitoring required clauses 1.3, 2.1 and 2.2 shall be investigated immediately and the appropriate action be taken to abate the emission. The adverse emission and any action needed shall be recorded in the process log book.
- 2.4 The results of monitoring to comply with 2.1 and 2.2 shall be recorded in a log book in addition to any adverse emissions noted and action undertaken. This shall include the date, time and name of the observer and an assessment of the emissions. The log book shall be retained on site for a minimum of four years.
- 2.5 Sampling to demonstrate compliance with clauses 1.3 shall not take place without the prior approval of the local authority. At least 14 days prior to the proposed sampling the operator shall notify the local authority of the provisional date and time of the sampling, the pollutants to be tested for and methods to be used.
- 2.6 The results from all periodic monitoring exercises referred to in clause 1.3 shall be forwarded to the local enforcing authority within 8 weeks of the completion of the sampling.
- 2.7 A solvent inventory detailing in tonnes the usage of propylene glycol shall be submitted to this local authority on a 12 monthly basis.

### **3.0 OPERATIONAL CONTROLS**

- 3.1 All stocks of friable hard scrap shall be stored in lidded containers following milling and sieving and before subsequent use on the site.
- 3.2 Stocks of hard metal powder shall be stored in sealed containers during transport to the south site and whilst they are in storage awaiting use.
- 3.3 All spillages of powder shall be contained and manually collected as soon as possible. Collection must be achieved by the use of the vacuum type cleaning equipment or a wet collection method. Dry sweeping of dusty spillages is not permitted.
- 3.4 Residue dust and sludge collected from local extract ventilation system, serving the bag house filters (north site), the cartridge, the cartridge and cyclone and electromagnetic filters (south site) shall be stored in designated containers within the warehouse. The level of the residue within the container shall be manually controlled so that there is no

overflow or spillage. The residue may only be around the site in a sealed container that prevents entrainment.

- 3.5 All stocks of dusty or potentially dusty materials shall be stored in retentive, lidded containers. Friable hard scrap exposed for the purposes of cooling must be stored internally in a location suitable to prevent wind entrainment of powder.
- 3.6 Re-condensed zinc collected from the furnaces and stored externally shall be covered in order to prevent wind whipping.

#### **4.0 STACKS, DUCTS AND PROCESS VENTS**

- 4.1 Emissions from the eight batch type furnaces on the north site shall only be emitted to atmosphere via the four paper element type filter systems.
- 4.2 Emissions from the sieving and milling of the friable hard scrap shall be emitted to air via the two bag house filters (north site) and stack 7 on plan PPC/025/B.
- 4.3 Emissions from the sorting of the mixed hard scrap shall be emitted to air via the bag house filter (north site) and stack 3 on plan PPC/025/B.
- 4.4 Emissions from the soft machining of the pressed hard metal powder shall be emitted to air via the dry filtration system and stacks 18 to 26 inclusive on plan PPC/025/C
- 4.5 Emissions from the grinding area for the hard metal products should be emitted to air via stacks 29 to 31 inclusive, 33 - 37 inclusive and 45 as shown on plan PPC/025/C and their associated filtration /collection plant.
- 4.6 Emissions from the sintering furnace pumps shall be emitted via the activated carbon filters and vents 5a to 15a inclusive as shown on plan PPC/025/C.
- 4.7 The ductwork and bag house filters to the local extract ventilation systems serving the sorting room in the warehouse and serving the milling and sieving equipment in the powder room shall be inspected for efficiency of operation with appropriate maintenance being action taken to rectify faults (all north site). The necessary maintenance shall take place on a six monthly basis.
- 4.8 All local extract ventilation systems on the south site including , cartridge, cartridge and cyclone and electromagnetic systems shall be inspected and relevant maintenance action taken. The necessary maintenance shall take place on a six monthly basis.
- 4.9 Records of all services or maintenance activities carried out to the local extract ventilation systems to the powder room and warehouse and the south site hard metal powder process must be retained on site for a

minimum of two years and made available on request to the Local Authority Inspector.

- 4.10 All process stacks shall be the height specified on attachment PPC/025/D and not restricted by a cap, cowl or other device that may restrict the dispersal of emissions.

## **5.0 FURNACES AND OPERATIONAL CONTROLS**

- 5.1 The batch type furnaces (north site) and all associated casings, ductwork and ancillary equipment must be made and maintained as gas tight as practicable. The gas tight integrity of each furnace and its plant shall be tested prior to each batch process.
- 5.2 Furnaces shall be fitted with temperature controls to enable continuous monitoring of the furnace temperatures.
- 5.3 All Sandvik DMK furnaces and hot isostatic furnaces shall have their environmentally critical plant i.e. PEG residue abatement plant, serviced on a six monthly basis. Records of maintenance shall be available to the Local Authority Inspector.

## **6.0 GENERAL OPERATIONS**

- 6.1 The operator shall undertake regular cleaning and preventative maintenance including inspection and repair/replacement on all plant and equipment concerned with the emission, capture, transport and control of emissions to atmosphere. Where necessary manufacturers guidelines shall be used to determine the regularity of maintenance. Records of preventative maintenance including inspections and any works undertaken shall be kept on site and made available to the local authority inspector on request.
- 6.2 Spares and consumables for plant and equipment used in the installation in particular that subject to continual use or wear shall be held on site or shall be available at short notice. Such plant or equipment shall not be used unless that plant or equipment is capable of working in accordance with the conditions of this permit.
- 6.3 Staff at all levels shall receive the necessary training and instruction in their duties relating to control of the activities and emissions to air. Records shall be kept which details all relevant training provided to staff, and these records shall be kept for a minimum of 2 years.
- 6.4 Any malfunction of plant or spillage of solvent based materials shall be remedied as soon as possible and process operations altered whilst the necessary work is undertaken.
- 6.5 Any incident likely to give rise to adverse atmospheric emissions or emissions that may have an impact on the local community shall be

notified to the local authority immediately, and the details of incident including remedial action taken recorded in the process log book.

- 6.6 The operator shall make available on demand and without charge any of the records required to be kept by this permit.
- 6.7 If there is any intention to change any aspect of the prescribed installation from the description contained in the beginning of this permit, or any other aspect which may affect the substances or concentration or amount of substances being emitted to atmosphere, the operator shall notify the regulator of the proposed changes at least 4 weeks in advance before the changes take place.

## **DOCUMENT C**

### **RESIDUAL DUTY**

In relation to any aspect of the process not regulated by specific conditions in this permit, then Best Available Techniques shall be used:

For the purposes of the Pollution Prevention and Control (England and Wales) Regulations 2000, “best available techniques” means the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where practicable, generally to reduce emissions and the impact on the environment as a whole; and for the purpose of this definition –

- a) “available techniques” means those techniques which have been developed on a scale which allows implementation in the relevant industrial sector, in the economically and technically viable conditions, taking into consideration the cost and advantages, whether or not the techniques are used or produced inside the United Kingdom, as long as they are reasonably accessible to the operator;
- b) “best” means, in relation to techniques, the most effective in achieving a high general level of protection of the environment as a whole;
- c) “techniques” includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.

## **SUPPLEMENTARY NOTES**

These notes do not comprise part of the Permit PPC/025 but contain guidance relevant to the Permit.

### **Inspections and Powers of Entry**

Regular inspections will be carried out by officers of the Council (the Local Authority Inspectors) to check and ensure full compliance with the Permit conditions and residual duties. These inspections may be carried out without prior notice.

Under section 108(6) of the Environment Act 1995 authorised Local Authority Inspectors have been granted powers of entry into any premises for the purposes of discharging relevant duties.

### **Reviews**

The Local Authority has a statutory duty to review the permit at least once every 6 years or in the following circumstances set out in regulation 15 of the Pollution Prevention and Control regulations 2000:

- a) The pollution from the installation is of such significance that the existing emission limit values for the permit need to be revised or new emission limit values need to be included in the permit
- b) Substantial changes in BAT make it possible to reduce emissions from the installation or mobile plant significantly without imposing excessive costs;  
or
- c) Operational safety of the activities carried out in the installation or mobile plant requires other techniques to be used

### **Health and Safety**

This Permit is given in relation to the requirements of the Pollution Prevention and Control (England and Wales) Regulations 2000. It must not be taken to replace any workplace responsibilities the operator has under Health & Safety legislation. Whenever emission limits quoted in this Permit conflict with occupational exposure limits set under the Health and Safety at Work Act 1974 to secure the health, safety or welfare of persons at work, the tighter limit should prevail.

Installation must be operated in order to protect persons at work as well as the environment. In achieving conditions in this Permit the operator must not adopt any course of action that would put at risk the health, safety or welfare of persons at work.

### **Other Statutory Requirements**

This Permit does not detract from any other statutory requirement, such as the need to obtain planning permission, hazardous substances consent, discharge consent from the Environment Agency, building regulations approval, or a waste disposal licence.

This Permit does not authorise a contravention of any other enactment or any order made, granted or issued under any enactment, nor does it authorise a contravention of any rule or breach of any agreement.

The Operator is advised to consult the relevant Planning Department regarding changes that may be required as a result of this Permit (e.g. stack heights) as they may require planning permission.

### **Transfer of Permits**

Where the operator of an installation wishes to transfer, in whole or in part, his permit to another person, the operator and the proposed transferee shall jointly make an application to the regulator to affect the transfer. The permit shall accompany such an application and any fee prescribed in respect of the transfer.

In the case of partial transfer, where the original operator retains part of the permit, the application must make clear who will retain control over the various parts of the installation. The application must include a plan identifying which parts of the site and which activities the operator proposes transferring.

The local authority will then determine whether to allow the transfer within a two-month period, unless the local authority and the applicants agree a longer period. Where the local authority approves the transfer, the transfer will take effect from the date requested by the operator or a date that may be agreed by the local authority and the applicants.

### **Variation to Permits**

Variation to permits may be initiated either by the local authority or the operator, either in response to changes in the operation of an installation or if new conditions are needed to deal with new matters. Variations may be required in response to the following.

- Change of operation of the installation. (The operator shall notify the local authority under Section 16(1) of the Regulations.)
- In response to the findings of a periodic review of conditions.
- In response to the findings of an inspection.
- New or revised sector guidance notes

The operator should apply to the Local Authority in order to vary a permit under regulation 17 of the Regulations. The application must be in writing and, in accordance with Part 1 of Schedule 7 to the Regulations contain:

- The name, address and telephone number of the operator.
- The address of the installation.
- A correspondence address.
- A description of the proposed changes.
- An indication of the variations the operator would like to make.
- Any other information the operator wants the authority take account of.

### **Substantial Change**

A substantial change means, in relation to an installation, a change in operation, which in the opinion of the local authority may have significant negative effects on human beings or the environment.

Where the local authority deems that a proposed variation constitutes a substantial change, the operator will be informed of the process to follow.

### **Noise**

This Permit does not include reference to noise. Statutory noise nuisance is regulated separately under the provisions of Part III of the 1990 Act.

### **Appeals**

An Appeal can be made against the conditions in, or variations to this Permit as per Part IV of the Regulations. Appeals are made to the Planning Inspectorate who acts on behalf of the Secretary of State. Appeals against conditions within a Permit must be submitted within 6 months of the date of issue of the permit. Appeals against variation notices must be submitted within 2 months of the date of issue of the notice. Appeals should be despatched on the day they are dated and sent to:

The Planning Inspectorate  
Environmental Appeals Administration  
Room 4/19 – Eagle Wing  
Temple Quay House  
2 The Square  
Temple Quay  
BRISTOL  
BS1 6PN

### **HMSO Publications**

All HMSO publications can be ordered by telephone on Tel: 0870 600 5522, Fax: 0870 600 5533 or e-mail: [book.orders@tso.co.uk](mailto:book.orders@tso.co.uk)

### **Emission Monitoring Protocol**

The documented procedure by which reliable and comparable results are obtained from measurements at source is known as a Protocol.

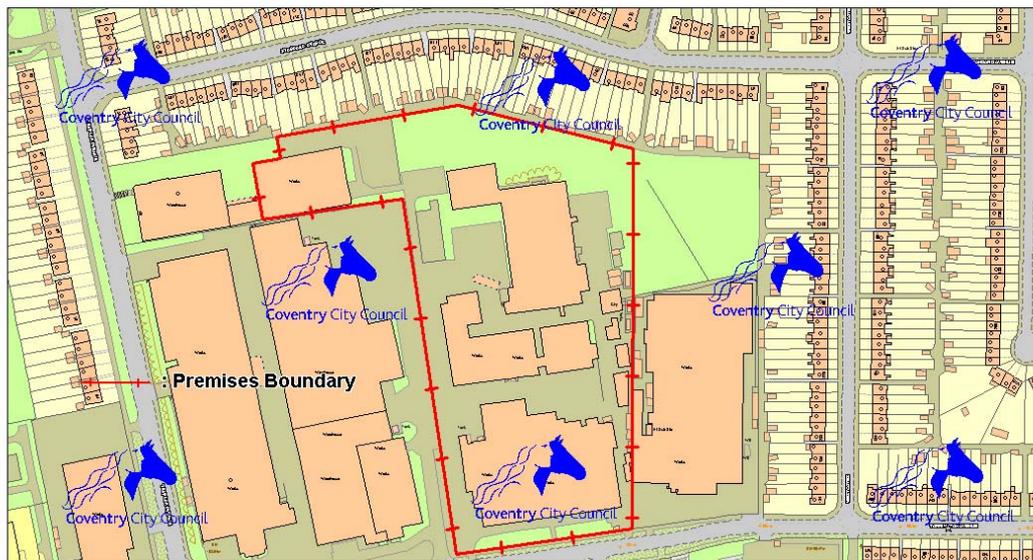
Protocols ensure that the sampling procedures are carried out correctly and that the results obtained accurately characterise the process.

The main components of a Protocol are as follows:-

1. Calibre and quality of the sampling team.
2. A reference measurement method (standard methods may not always be available)
3. A standard methodology setting out:
  - health and safety considerations
  - pollutants of interest
  - plant operating conditions required
  - selection and location of sampling position

- sampling characteristics (e.g. isokinetic etc) and techniques
- sampling frequency
- sampling duration
- number of samples
- type (including make and model), condition and suitability of sampling equipment
- required accuracy
- variability of emissions
- analytical methods including laboratory competence and NAMAS accreditation certificate copy for each pollutant of interest
- analytical precision
- procedures to be adopted if standard methods unavailable
- calibration certificate(s) for sampling equipment
- Quality Control and Quality Assurance procedures
- Presentation of results and associated information.

Plan PPC/025/A Premises Boundary of Sandvik Hard Materials Ltd.



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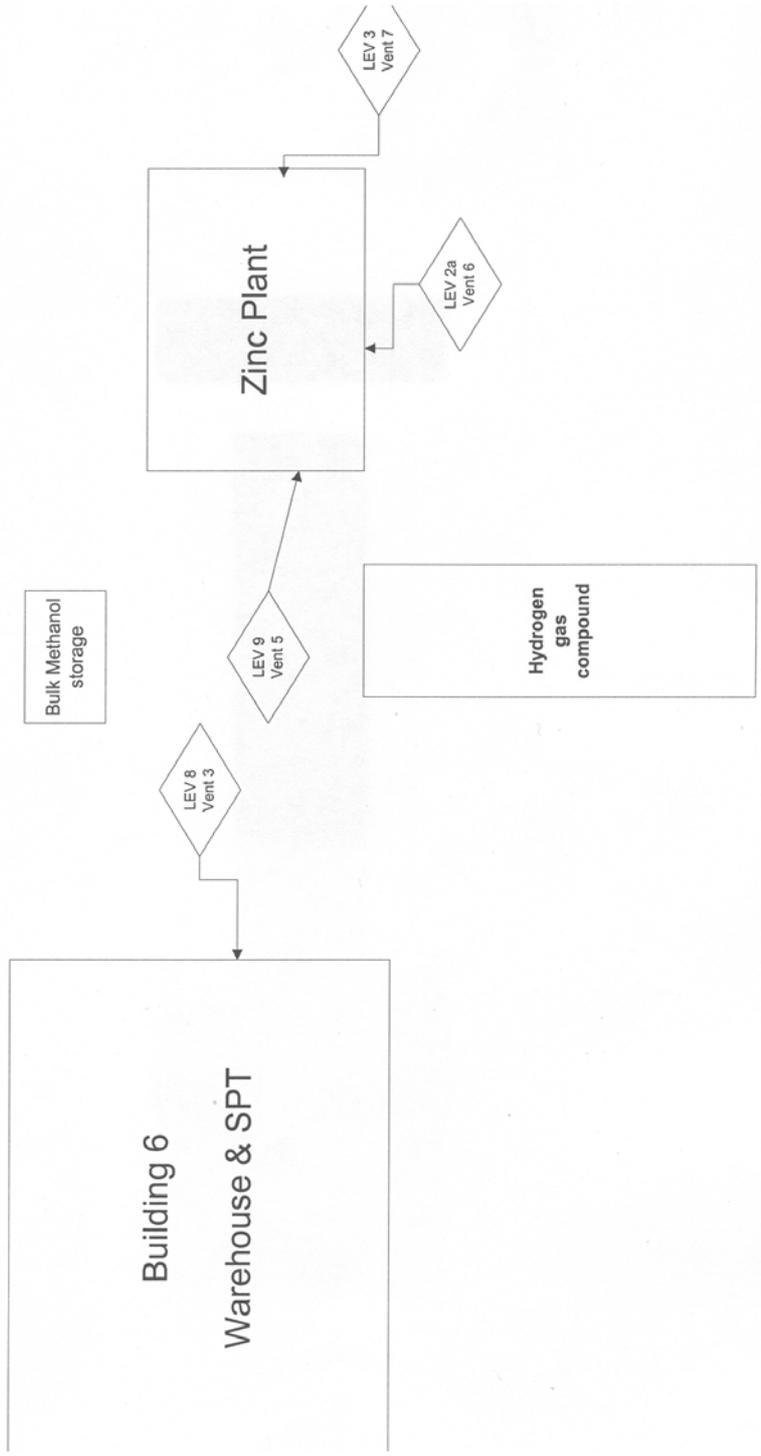
City Services Directorate,  
 Environmental Health,  
 Environmental Protection,  
 Broadgate House, Broadgate  
 Coventry, CV1 1NH

Tel: 024 7683 1832



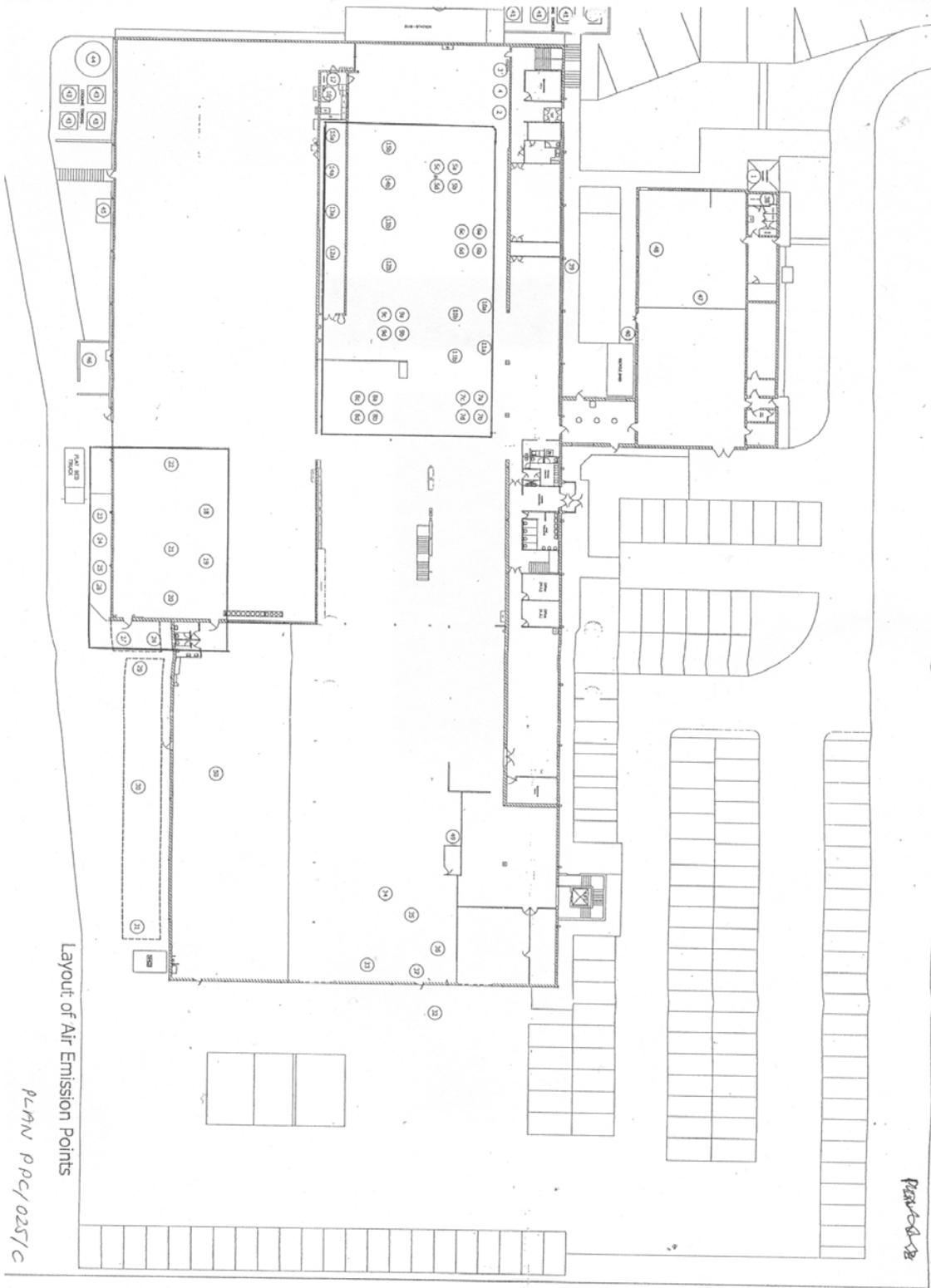
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Sandvik Hard Materials - North Site Site Plan  
IPPC Part B - Location of air emission points



PLAN PPC/025/16

Date:  
February 2005



Layout of Air Emission Points

PLAN PPC/025/C

PLAN 025

Sandvik - Further information – Air emission points – IPPC Part B  
February 2005

Vent No.	LEV No.	Plant/equipment serving	Height of stack (metres)	Location of emission monitoring
<b>South Site</b>				
2	9	Extrusion	N/A	Not monitored
17	3	Heat extraction for pump house	10	Not monitored
18	21	Soft machining	10	On the roof from stack
19	20	Soft machining	10	On the roof from stack
20	19	Soft machining	10	On the roof from stack
21	25	Soft machining	10	On the roof from stack
22	26	Soft machining	10	On the roof from stack
23	27	Dry Bag section	2	Ground level from vent
24	28	Dry Bag section	2	Ground level from vent
25	22	Soft machining	2	Ground level from vent
26	23	Soft machining	2	Ground level from vent
27	12	Dorst Press Line	0.5	Ground level from vent
28	12A	Dorst Press Line	0.5	Ground level from vent
29	011	Grinding machinery	8	Close to top of stack
30	002	Grinding machinery	8	Close to top of stack
31	001	Grinding machinery	4	From vent
33	15	Grinding machinery -Oil HT Units	10	On the roof from stack
34	15A	Grinding machinery -Oil HT Units	10	On the roof from stack
35	17	Grinding machinery -Oil HT Units	10	On the roof from stack
36	18	Grinding machinery -Oil HT Units	10	On the roof from stack
37	16	Grinding machinery -Oil HT Units	10	On the roof from stack
39	30	Laboratory	<b>Now removed</b>	Not monitored
40	31	Maintenance - Welding	3	Not monitored
45	24	Smith Cell	3	
46	13	Press line	<b>No longer used</b>	Ground level from outlet
<b>North Site</b>				
3	8	Sorting & blending equipment	4.5	DCE vent
5	9	Breaking Hard Metal cakes	5	DCE vent
6	2a	Cleaning furnace holes	6	DCE vent
7	3	Sieving & milling	9	On the roof from stack

February 2005

PPC/025/D