Part B Application Form
Application for a Permit
Pollution Prevention and Control Act, 1999
Environmental Permitting (England and Wales) Regulations 2010

INTRODUCTION

1.When to use this form
This regime is known as Local Authority Pollution Prevention and Control, **LAPPC**. Installations permitted under this regime are known as **Part B** installations. Use this form if you are sending an application for a 'Part B' permit to Coventry City Council under the Environmental Permitting Regulations 2010 ("the EP Regulations").

2. Before you start to fill in this form
You are strongly advised to read relevant parts of the Defra general guidance manual issued for LAPPC, republished in 2010 and available at:
http://www.defra.gov.uk/environment/quality/pollution/ppc/localauth/pubs/guidance/manuals.htm. This contains a list of other documents you may need to refer to when you are preparing your application, and explains some of the technical terms used. You will also need to read the relevant Process Guidance ("PG") Note for your process: http://www.defra.gov.uk/environment/quality/pollution/ppc/localauth/pubs/guidance/notes/pgnotes/. The EP Regulations can be obtained from the link: http://www.legislation.gov.uk/uksi/2010/675/contents/made

3.Which parts of the form to fill in
You should fill in as much of this form as possible. The appropriate fee must be enclosed with the application to enable it to be processed further. When completed return to:

Environmental Protection, Coventry City Council
Room 314 Broadgate House, Broadgate
Coventry CV1 1NH

4. Other documents you may need to submit
There are a number of other documents you may need to send us with your application. Each time a request for a document is made in the application form you will need to record a document reference number for the document or documents that you are submitting in the space provided on the form for this purpose. Please also mark the document(s) clearly with this reference number and the application reference number (if you have been given one, it will be at the top of the form overleaf). If you do not have either of these, please use the name of the installation.

5. Using continuation sheets
In the case of the questions on the application form itself, please use a continuation sheet if you need extra space; but please indicate clearly on the form that you have done so by stating a document reference number for that continuation sheet. Please also mark the continuation sheet itself clearly with the information referred to above.

6. Copies
Please send the original and **three** copies of the form and all other supporting material, to assist consultation.

7. If you need help and advice
We have made the application form as straightforward as possible, but please get in touch with Environmental Protection on 0500 834333 or email env.protection@coventry.gov.uk if you need any advice on how to set out the information we need.

Application For An Environmental Permit Part B

* required information

Section 1 of 11

Your reference	TPPL Cov F2	
Are you an agent acting on behalf of the applicant		NO

Tick 'no' if you are applying on your own behalf or on behalf of a business you own or work for.

Applicant details:

*First name	George	
*Family name	Terris	
*E-mail	George.terris@trelleborg.com	
Main telephone number (Include country codes)	01777712500	
Other telephone number (Include country codes)		

Indicate here if you would prefer not be contacted by telephone

Are you:

Applying as a business or organisation, including a sole trader	YES	
Applying as an individual		NO

A sole trader is a business owned by one person without any special legal structure. Applying as an individual means you are applying so you can be employed, or for some other personal reason, such as following a hobby.

Applicant Business

*Is your business registered in the UK with Companies House?	YES		
*Is your business registered outside the UK?		NO	
*Business name	Trelleborg PPL Ltd		If your business is registered, use it's registered name
*VAT number	GB772738300		Put "none" if you are not registered for VAT
*Legal status	Limited Company Registered 4226233		
*Your position in the business	Quality & Safety Manager		
Home country	UK		The country where the headquarters of your business is located

Business Address

*Building number or name	TPPL Ltd Head Office	If you have one, this should be your official address – that is an address required of you by law for receiving communications
*Street	Strirling Road	

	West Carr Road Ind Est
District	
*City or town	Retford
County	Notts
*Postcode	DN22 7SN
*Country	UK

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APPLICANT DETAILS

*Name of installation	Trelleborg PPL Ltd

Please give the address of the site of the installation

*Building number or name	
*Street	Curriers Close
District	Canley
*City or town	Coventry
County	Warwickshire
*Postcode	CV4 8AW
*Country	UK
Telephone number	02476460600
Ordnance Survey national grid reference 8 characters, for example SJ123456	SP28030 77428

Please give details of any existing LAPC or IPC authorisation for the installation, or any waste management licences or water discharge consents, excluding reference numbers(s) and type(s)

None

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THE OPERATOR

Please provide the information requested about the "Operator", which means the person who it is proposed will have control over the installation in accordance with the permit (if granted)

Full name of company, partnership or corporate body	Trelleborg PPL Ltd
Trading/business name (if different from above)	

Registered Address

Is this address the same as the address given in section 1?		NO

If "no" enter address below:

Building number or name	Trelleborg Holdings (UK) Ltd
Street	International Drive
District	Tewkesbury Business Park
City or town	Tewkesbury
County	Gloucestershire
Postcode	GL20 8UQ
Country	UK

Principal Office Address

Is the principal address the same as the registered address?		NO

If "no" enter address below:

Building number or name	Trelleborg PPL ltd
Street	Stirling Road
District	West Carr Road Ind Est
City or town	Retford
County	Notts
Postcode	DN22 7SN

Holding Companies

Is the operator a subsidiary of a holding company within the meaning of section 1159 of the Companies Act 2006?	YES	

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ABOUT THE INSTALLATION

Please state below details of all the currant activities in operation at the whole installation.
Please identify all activities listed in Schedule 1 to the EP regulations that are, or are proposed, to be carried out in the stationary technical unit of the installation.

Processing of MDI polyurethane systems into solid polyurethane elastomeric products for rail industries UK and Global.

Please identify any directly associated activities that are, or are proposed, to be carried out on the same site which:

- Have a technical connection with the activities in the stationary technical unit
- Could have an effect on pollution

Grit blasting steel inserts in closed loop system prior to electrostatic coating with a water based bonding agent. No VOC's & no pollution effect.

Please quote the chapter number, section number, then paragraph and sub-paragraph number as shown in Part 2 of schedule 1 to the EP regulations (for example, manufacturing glass and glass fibre where the use of lead or any lead compound is involved, would be listed as chapter 3, section 3.3, part B(b))

Activities in the stationary technical unit

Chapter 4 Section 4.1 Part B(a)

Directly associated activities

Schedule 1 reference | Part B

Why is the application being made?

[ ] The installation is new

[X] The installation is existing, but changes to the installation or to the EP regulations means that an LAPPC part B permit is now required

Site Maps

Please provide a suitable map showing the location of the installation, clearly defining the chimney location and oil storage tank. No chimneys, no tanks, no di-isocyanate emission points.

Document reference | Area Map F2.pdf

Please provide a suitable plan showing the layout of activities on the site, including bulk storage of materials, waste storage areas and external emission points to atmosphere

Document reference | Coventry F2 Schematic.pdf

Section 5 of 11

THE INSTALLATION

Please provide information about the aspects of your installation. We need this information to determine whether you will operate the installation in a way in which the environmental requirements of the EP Regulations are met.

Storage & processing of MDI polyurethane to produce elastomeric product.
Systems used consist of polyol and methyl di-isocyante (MDI) combining in automated dispensing equipment to produce rapidly gelling polyurethane (PU) into mould tools. The PU moulding is air cured at ambient temperature.

Describe the proposed installation and activities and identify the foreseeable emissions to air from each stage of the process (this will include any foreseeable emissions during start up, shut down and any breakdown/abnormal operation)
The use of flow diagrams may aid to simplify the operations.

1) There is no differential between start up, shut down, normal or abnormal operations.
2) Atmospheric testing has shown isocyanate levels, as NCO, to be in the non-detectable range.
3) Grit blast steel bar → Apply water based bonding agent → Silicone release moulds → Dispense the polyol+iso mix → Pour into mould → Allow to air cure → Demould → Trim, pack, despatch.

Once all foreseeable emissions have been identified in the proposed installation activities, each emission should be characterised (including odour) and quantified

There are no discernable odours or emissions, as stated above tests have shown non-detectable levels.

Atmospheric emissions should be categorised under the following

I. Point source (e.g. chimney/vent, identified by a number and detailed on a plan
II. Fugitive source)e.g. from stockpiles/storage areas

I) There are no point/stack emission sources. Emissions of isocyanates are fugitive only and from the processing area.

II) Fugitive emissions from the processing/curing of the polyurethane mix have tested as non-detectable.

If any monitoring has been undertaken please provide the details of emission concentrations and quantify in terms of mass emissions. If no monitoring has been undertaken please state this.
(Emission concentration = e.g. milligrams per cubic metre of air; mass emissions = e.g. grams per hour, tonnes per year)

See attached test results from Alcontrol it is referenced as Factory 2 for this site under our previous company name prior to being taken over by Trelleborg AB on January 4th 2011.

For each emission identified from the installations' activities describe the current and proposed technology and other techniques for preventing or, where that is not practical, reducing the emissions into the air. If no techniques are currently used and the emission goes directly into the environment, without abatement or treatment then this should be stated.

Emissions are already minimised to the non-detectable range as a consequence of the raw materials and systems in use.

Describe the proposed systems to be used in the event of unintentional releases and their consequences. This must identify, assess and minimise the environmental risks and hazards, provide a risk based assessment of any likely unintentional releases, including the use of historical evidence. If no assessments have been carried out please state.

The only conceivable unintentional release would be as result of a spillage of raw material. As the MDI component materials are highly viscous, of a very low volatility and do not react unless mixed (producing primarily CO_2) the environmental effect in regard to isocyanate emissions would be non-detectable. Also the spill spread would be slow moving and easily contained with spill kits. Raw materials are stored inside and clear of all drainage systems. There is no historical evidence of pollution of any description from this site.

Describe the proposed measures for monitoring all identified emissions including any environmental monitoring and he frequency, measurement methodology and evaluation procedure proposed (e.g. particulate matter emissions, odour etc). Include the details of any monitoring which has been carried out which has not been requested in nay other part of this application. If no monitoring is proposed for an emission please state the reason.

There are no isocyanate stack/emission points to monitor, fugitive only
Monitoring is performed for atmospheric & personal monitoring of isocyanates as required by COSHH Regulations. This is performed by an accredited 3rd party, currently Alcontrol, on a 12 to 14 month cycle. Refer to the previously advised document which details methodology & results (non-detectable).

Provide detailed procedures and policies of you proposed environmental management techniques, in relation to the installation activities described.

The site will progress to ISO14001 Registration by the end of 2013 at the latest.
As emissions of isocyanates have to date been non-detectable, current and future environmental management in relation to this process will focus on maintaining this position, minimising the risk of spillages, maximising the efficient use of materials and minimising waste.

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IMPACT ON THE ENVIRONMENT

Provide an assessment of the potential significant local environmental effects of the foreseeable emissions (e.g. is there a history of complaints and/or is the installation in an air quality management area?)

None

Are there any Sites of Special Scientific Interest (SSIs) or European protected sites which are within either;

- 2 kilometres – for an installation which includes part B combustion, incineration (but not crematoria), iron and steel and non-ferrous metal activities
- 1 kilometre – for part B mineral activities and cement and lime activities
- ½ a kilometre – for all other part B activities

	NO

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ENVIRONMENTAL STATEMENTS

Has an environmental impact assessment been carried out under The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999/293, for any other reason with respect to the installation?	NO

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ADDITIONAL INFORMATION

Please supply any additional information which you would like us to take account of in considering this application.

As detailed in our previous letters and email correspondence we consider this site should be exempt on the grounds of triviality. Isocyanate emissions and odours are non-detectable and the site does not present either a human, flora, fauna or other environmental hazard.

Section 9 of 11

ANNUAL CHARGES

If we grant you a permit, you will be required to pay an annual subsistence charge, failure to do so will result in revocation of your permit and you will be not be able to operate your installation

Please provide details of the address you wish invoices to be sent to and details of someone we may contact about fees and charges within your finance section

Contact name	Nigel McCann
Building number or name	Trelleborg PPL Ltd
Street	Falkland Close
District	Canley
City or Town	Coventry
County	Warwickshire
Postcode	CV4 8AU
Telephone number	02476460600
Other telephone number	
Please give company purchase order number or any other reference number	PO 59998

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COMMERCIAL CONFIDENTIALITY

Is there any information in the application that you wish to justify being kept from the public register on the grounds of commercial confidentiality?		NO

Please provide full justification, considering the definition of commercial confidentiality within the PPC Regulations

Is there any information in the application that you believe should be kept from the public register on the grounds of national security?		NO

Please provide full justification, considering the definition of commercial confidentiality within the PPC Regulations

The information you give will be used by the local authority to process your application. It will be places 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 he conditions of your permit and deal with any matters relating to your permit
- 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 Regulations 2004 (if the data Protection Act allows)
- Asses 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. 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

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PAYMENT DETAILS

This fee must be paid to the authority.

* Fee Amount	£1,579

Postal Address

Building number or name	Trelleborg PPL Ltd
Street	Falkland Close
District	Canley

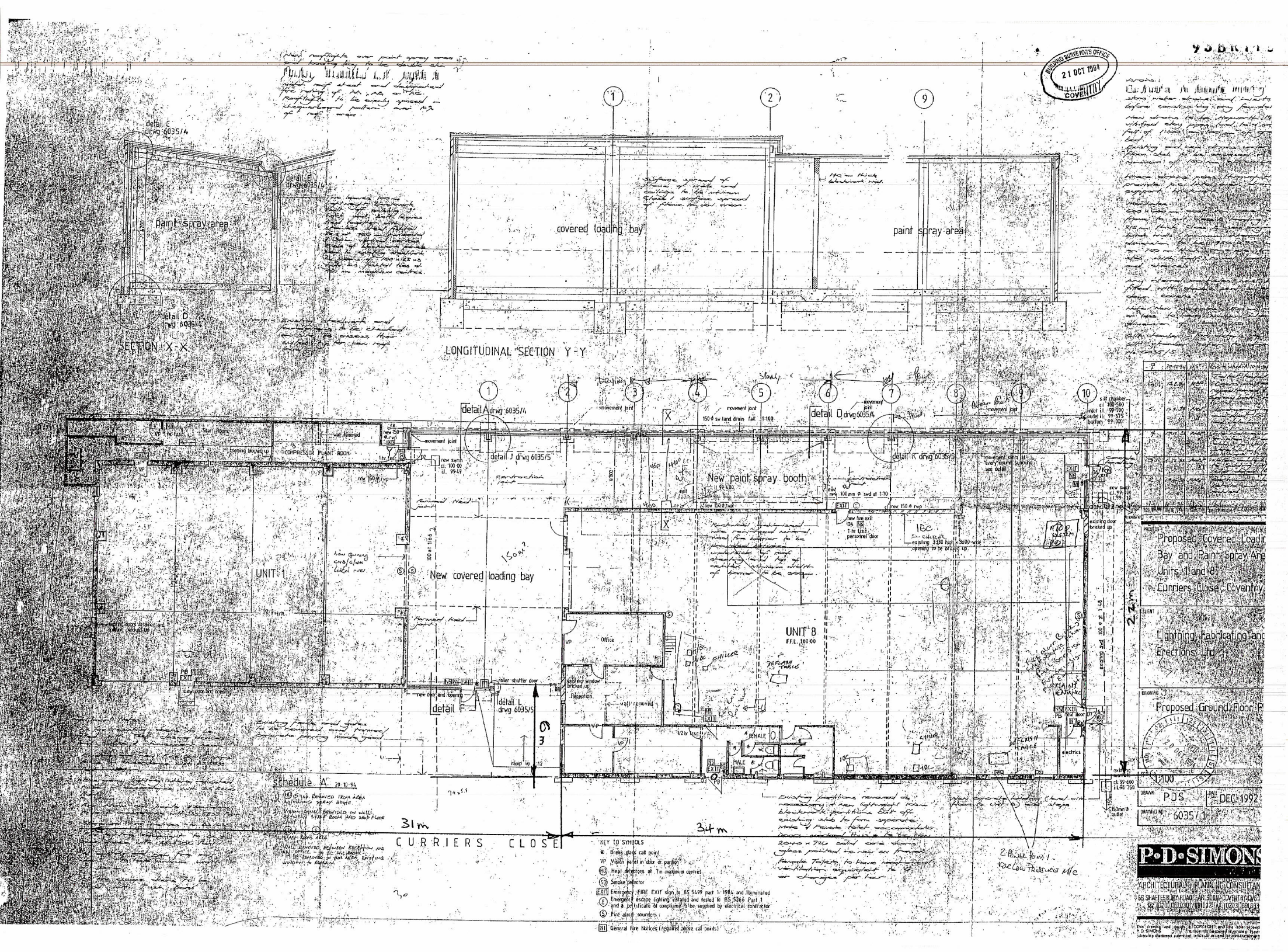
City or Town	Coventry
County	Warwickshire

DECLARATION
This section should be completed by the applicant, unless you answered "Yes" to the question "Are you an agent acting on behalf of the applicant?"
I/We certify:

No offences have been committed in the previous five years which are relevant to my/our competence to operate this installation in accordance with the EP Regulations (delete as appropriate*)

* Full name	**George Terris**
* Capacity	**HSEQ Manager**
Date (dd/mm/yyy)	**19/09/2011**

BUILDING SURVEYOR'S OFFICE
21 OCT 1994
COVENTRY



PROJECT
Proposed Covered Loadi
Bay and Paint Spray Are
Units 1 and 8
Curriers Close, Coventry

CLIENT
Lightning Fabricating and
Erections Ltd

DRAWING
Proposed Ground Floor P

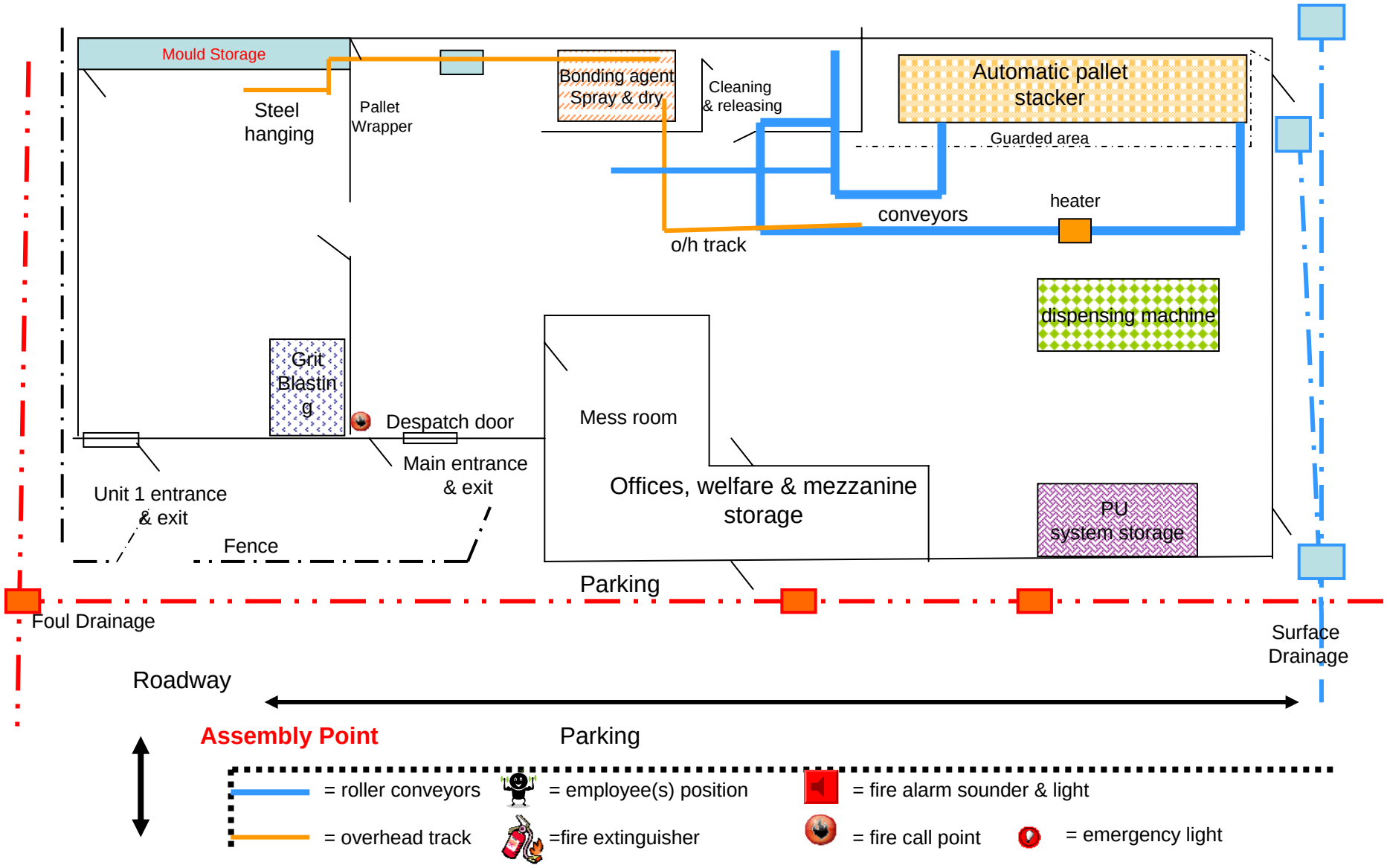
1:100

DRAWN PDS DATE DEC 1992

DRAWING No 6035/1

P·D·SIMONS
ARCHITECTURAL & PLANNING CONSULTAN
86 SHAFTESBURY ROAD EARLSDON COVENTRY CV5
TEL (0203) 673307/691021 FAX (0203) 691633

PPL TUFTHANE – Factory 2 - CURRIERS CLOSE
Schematic Drainage Plan – not to scale



Maps

CV4 8AW, Canley , **Coventry, United Kingdom**

TPPL Coventry, Curriers Close (F2) site

Bird's eye view maps can't be printed, so another map view has been substituted.

AN ASSESSMENT OF OCCUPATIONAL EXPOSURE TO AIRBORNE CONTAMINANTS DURING POLYURETHANE CASTING

ALcontrol Laboratories
On-Site Services

PPL MARINE PRODUCTS LIMITED
UNIT 8 CHARTER ROAD INDUSTRIAL ESTATE
COVENTRY
CV4 8AW

Report No:	**12150C**	**Client Ref:**	**Coventry air monitoring**
Survey Date:	**9 November 2010**	**Site Contact:**	**George Terris**
Report Date:	**25 November 2010**	**Server Reference:**	**G:nufpol\public\occupational hygiene\reports\reports by name\2010**

ALcontrol Laboratories On-Site Services undertake site and process confidentiality relating to your business at all times. If you have any queries regarding this report contact ALcontrol Laboratories On-Site Services – Unit 5, Loomer Rd., Newcastle-under-Lyme, Staffordshire. ST5 7LB. Tel: 01782 576590.

CONTENTS

EXECUTIVE SUMMARY

Occupational exposures were assessed on 9 November 2010 at PPL Marine Products Limited, Factories 1 and 2 during the casting of polyurethane items. The results and information obtained during the visit indicated the following:-

It is concluded that workplace concentrations of isocyanates are low and controlled under the prevailing conditions. It should be noted that Factory 1 was not running at its full potential workload.

SURVEYED BY :

[redacted]

Geoff Waggett – Occupational Hygienist

VERIFIED BY:

[redacted]

Darren Bolton LFOH – Occupational Hygienist

1. INTRODUCTION

The survey described in this report was carried out on 9 November 2010 by Geoff Waggett at the request of George Terris of Polyurethane Products Limited at the Coventry sites of PPL Marine Products and in accordance with our work specifications outlined in quotation reference OH10620, in order to determine personal exposure to isocyanate vapours during the casting of polyurethane (MDI only) components.

In accordance with the COSHH Approved Code of Practice, information relating to monitoring procedures and access to results should be made available to those employees involved.

2. OBSERVATIONS / DESCRIPTION OF PROCESS

Production schedules on the date of the survey were described as low in Factory 1 and normal in Factory 2. Note, Factory 2 suffered a mechanical breakdown in the afternoon which limited production.

Factory 1 is engaged in the production of components for the marine, offshore and aggregate industries, all items are manufactured from MDI isocyanates. Production depends entirely on customer orders with very few items produced on spec. During the survey period three casting areas were in use producing block and tubular pieces. Metal reinforcement pieces are degreased in a vapour-degreasing tank.

Moulds were first sprayed with a silicone release agent and then loaded with a preset quantity of mixed isocyanate/polyol liquids fro automated injection systems. Once filled, the moulds are loaded into box ovens and force cured. One oven is fitted with a work table at the entrance, allowing items to be filled and then trimmed at the oven. A second work station is more remote from its cure oven, whilst the third area in use was basically a hot bench.

Extraction was limited to the vapour tank, release spray hood and box ovens (the box oven control was mostly to remove heat from the process).

Finished items are trimmed, inspected and packed. It is understood that the factory can be filled to capacity when a large order is received, this may influence personal exposures to isocyanate vapour.

Factory 2 specialises in manufacturing damping blocks for railway lines. In order to produce the numbers required, a track-type production line has been installed. The process is basically in two stages, metal preparation followed by casting.

The metal preparation room houses a large automated shot blaster and small grit blaster to clean scale and rust from the surfaces of pre-cut steel bars. The bars are loaded onto magnetic clips on a continuous conveyor system where they are passed through a bonding booth. This applies a solvent based bonding ‘paint’ to the bars before oven curing.

A second enclosed booth is used to apply a silicone release agent to the moulds before the bars are manually fitted into voids within the mould shells. Isocyanate and polyol is loaded via a premixing gun into the mould/ steel bar assembly, filled, capped and cured. Excess material is manually trimmed off before the blocks are loaded for dispatch.

Extraction is provided at the metal preparation booths, bonding booth and the spray booth.

3. MONITORING

Monitoring of personal exposure and background concentrations to total isocyanate vapours was carried out using Gilian ProValue3 sampling pumps to draw air at 1 litre per minute through an impinger solution backed up with a pre-treated 25mm GFA filter in a Swinnex holder. Personal exposure sampling was carried out in the breathing zone i.e. attached to the lapel or collar with background work taken at an even spacing along each factory.

Analysis for MDI was carried out by an accredited, outside laboratory.

4. LEGISLATION AND GUIDANCE

4.1 The Control Of Substances Hazardous to Health (COSHH) Regulations 2002 (as amended) and Approved Code of Practice and Guidance

The COSHH Regulations 2002 (as amended) require employers to carry out a suitable and sufficient assessment of the risk to health of employees which are exposed to hazardous substances in the workplace. The COSHH Regulations require an employer to prevent exposure of employees to hazardous substances by inhalation, ingestion or skin contact. Where this is not reasonably practicable then measures should be implemented to ensure adequate control.

Schedule 2A of the COSHH Regulations details eight principles of good practice for the control of substances hazardous to health. The guidance then provides a detailed explanation of how the principles should be applied in practice. Details of each of the principles and the relevant references in the ACOP, are summarised in Table 2, below.

Principle Reference	Principle	ACOP / Guidance Reference
Paragraph 298 – *"Good practice in the control of substances hazardous to health can be encapsulated in eight generic principles. They must be applied to obtain effective and reliable control. The principles overlap in their application. They are not rank ordered: the first is not more important than the last, although there is logic to their overall presentation".*		
(a)	Design and operate processes and activities to minimise emission, release and spread of substances hazardous to health.	Paragraphs 299 - 305
(b)	Take into account all relevant routes of exposure (inhalation, skin absorption and ingestion), when developing control measures.	Paragraphs 306 - 317
(c)	Control exposure by measures that are proportionate to the health risk.	Paragraphs 318 - 323
(d)	Choose the most effective and reliable control options, which minimise the escape and spread of substances hazardous to health.	Paragraphs 324 - 335
(e)	When adequate control of exposure cannot be achieved by other means, provide, in combination with other control measures, suitable personal protective equipment.	Paragraphs 336 - 345
(f)	Check and review regularly, all elements of control measures for their continuing effectiveness.	Paragraphs 346 - 350
(g)	Inform and train all employees on the hazards and risks associated with the substances with which they work and the use of control measures developed to minimise the risks.	Paragraphs 351 - 355
(h)	Ensure that the introduction of control measures does not increase the overall risk to health and safety.	Paragraphs 356 – 357

4.2 Workplace Exposure Limits (WELs) EH40

Under the COSHH Regulations a single type of occupational exposure limit is specified for substances hazardous by inhalation, this is the Workplace Exposure Limit. An employer must ensure that a WEL is not exceeded and in addition when a substance can cause occupational asthma, cancer or genetic effects then exposure must be reduced as low as reasonably practicable. The limits are time weighted average concentrations of substances in the air using either 8 hours or 15 minutes (short term exposure limit) as the reference period.

The COSHH Regulations also place a duty on the employer to apply principles of good occupational hygiene practice for the control of substances hazardous to health (regardless of whether a substance has an exposure limit or whether exposures are below any published limit).

The WEL that applies in this instance is given in the following table.

Substance	**8 hour TWA $mg.m^{-3}$**	**15 min STEL $mg.m^{-3}$**	**Risk Phrases and notations**
Total isocyanate	0.02	0.07	Sen
Key: Sen capable of causing occupational asthma			

5. RESULTS

Concentrations of total isocyanate vapour as MDI, monitored are reported in Table 1 for Factory 1 and Table 2 for Factory 2.

6. DISCUSSION

Factory 1

Two operators were monitored in Factory 1 whilst casting components and then loading them into fast cure ovens. In addition, static samples were taken along the factory, top, middle, bottom areas.

All concentrations determined were under the Limits of Detection for the analytical techniques used. When compared to the Workplace Exposure Limits, the concentrations were all less than 10% of the WEL. Given that this is the lowest value that can be expressed with confidence, the actual workplace levels are likely to be lower still.

Factory 2

Samples were taken at the filling operator and statically across the casting work area. Monitoring in Factory 2 was curtailed by a process failure, resulting in a relatively short sample period. As with Factory 1, concentrations determined were less than the Limits of Detection. However, the shorter sampling period effectively raises the values that can be expressed with confidence, resulting in exposures of around 15% of the WEL. The actual exposures and workplace concentrations are likely to be far lower than the values given.

7. CONCLUSIONS AND RECOMMENDATIONS

Following the monitoring exercise in Factories 1 and 2, it is concluded that workplace concentrations of isocyanates are low and controlled. It should be noted that Factory 1 was not running at its full potential workload.

Table No: 1 Levels of isocyanate Factory No.1

Sample No:	Name/Location	Activity	TOTAL ISOCYANATE[1] EXPOSURE	
			mg.m^{-3}	% WEL
GW818	Static, hot table 11 (bottom of factory)	Force curing items (09:31 to 11:30)	<d.l. <0.0019	<10
GW819	Static, oven 6 (top/office end of factory)	Force curing items (09:26 to 11:30)	<d.l. <0.0018	<10
GW820	Static, oven controller 33 (middle of factory)	Force curing items (09:26 to 11:30)	<d.l. <0.0019	<10
GW826	Jumaa Amidu	Casting, hot bench 11 (09:34 to 11:30)	<d.l. <0.0019	<10
GW827	Michael Aspell	Casting, oven 6 (09:38 to 11:30)	<d.l. <0.0020	<10

[1] WEL for all isocyanates = 0.02 mg.m^{-3}

Results quoted are averages over the sampling period, but have been compared directly with the 8-hour TWA WEL as they are representative of the tasks performed during the shift.

Static samples are not representative of personal exposure, but are expressed as a percentage of the WEL for illustrative purposes.

<d.l. = below the limit of detection

Table No: 2 Levels of isocyanate Factory No.2

Sample No:	Name/Location	Activity	TOTAL ISOCYANATE[1] EXPOSURE	
			mg.m^{-3}	% WEL
GW821	Static, under heater top end of unit	All background to casting (13:40 to 15:00)	<d.l. <0.0025	<12
GW822	Static, off load end of line	All background to casting (13:40 to 15:00)	<d.l. <0.0025	<12
GW823	Static, side of factory opposite casting gun	All background to casting (13:40 to 15:00)	<d.l. <0.0028	<14
GW825	Simon Connigale	Filling moulds with compound (13:40 to 15:00)	<d.l. <0.0027	<14

[1] WEL for all isocyanates = 0.02 mg.m^{-3}

Results quoted are averages over the sampling period, but have been compared directly with the 8-hour TWA WEL as they are representative of the tasks performed during the shift.

Static samples are not representative of personal exposure, but are expressed as a percentage of the WEL for illustrative purposes.

<d.l. = below the limit of detection

APPENDIX 2

RESULTS

F2 Particulates

APPENDIX 2
RESULTS

Particulate Emission Calculations (Values taken from raw data sheets)

Location:	Shot blast
Date of Sample:	09-Nov-10
Test No:	1
Filter No:	GFA 6108

Absolute temperature at meter (Tm)		286	K
Absolute temperature in duct (Td)		307	K
Total pressure in duct (Pd)		100.0	kPa
Total pressure at meter (Pm)		92.1	kPa
Temperature/Pressure correction factor =	$\frac{Pd \times Tm}{Pm \times Td}$ (CF)	1.01	
Total volume sampled at meter (Vm)		0.911	m^3
Quantity of air at nozzle =	$\frac{Vm}{CF}$ (Qn)	0.90	m^3
Particulate weighed on filter (W)		0.151	mg
Particulate concentration (nominal) = W/Qn		0.17	mg/m^3
Correction to STP =	$\frac{W \times Td \times 101.3}{Qn \times 273 \times Pd}$	**0.19**	mg/m^3

Process at time of sampling

Shot blasting rail damper bars

Substances in use at time of sampling
Shot blast bead

Other information
Velocity Profile m/s 25.6, 25.7, 25.0, 24.6, 24.8, 25.2, 25.3, 25.1, 24.6, 24.2
Average 25.0m/s Volume 1018m^3/hr
0.193grams/hour

APPENDIX 2
RESULTS

Particulate Emission Calculations (Values taken from raw data sheets)

Location:	Shot blast
Date of Sample:	09-Nov-10
Test No:	2
Filter No:	GFA 6109

Absolute temperature at meter (Tm)		286	K
Absolute temperature in duct (Td)		307	K
Total pressure in duct (Pd)		100.0	kPa
Total pressure at meter (Pm)		92.1	kPa
Temperature/Pressure correction factor =	$\frac{Pd \times Tm}{Pm \times Td}$ (CF)	1.01	
Total volume sampled at meter (Vm)		0.911	m³
Quantity of air at nozzle =	$\frac{Vm}{CF}$ (Qn)	0.90	m³
Particulate weighed on filter (W)		0.515	mg
Particulate concentration (nominal) = W/Qn		0.57	mg/m³
Correction to STP =	$\frac{W \times Td \times 101.3}{Qn \times 273 \times Pd}$	**0.65**	mg/m³

Process at time of sampling
Shot blasting

Substances in use at time of sampling
Shot blast beads

Other information
Velocity Profile m/s 25.6, 25.7, 25.0, 24.6, 24.8, 25.2, 25.3, 25.1, 24.6, 24.2
Average 25.0m/s Volume 1018m^3/hr
0.524grams/hour

APPENDIX 2
RESULTS

Particulate Emission Calculations (Values taken from raw data sheets)

Location:	Spray booth
Date of Sample:	09-Nov-10
Test No:	1
Filter No:	GFA 7110

Absolute temperature at meter (Tm)		291	K
Absolute temperature in duct (Td)		295	K
Total pressure in duct (Pd)		99.9	kPa
Total pressure at meter (Pm)		92.1	kPa
Temperature/Pressure correction factor =	$\frac{Pd \times Tm}{Pm \times Td}$ (CF)	1.07	
Total volume sampled at meter (Vm)		0.644	m^3
Quantity of air at nozzle =	$\frac{Vm}{CF}$ (Qn)	0.60	m^3
Particulate weighed on filter (W)		0.070	mg
Particulate concentration (nominal) = W/Qn		0.12	mg/m^3
Correction to STP =	$\frac{W \times Td \times 101.3}{Qn \times 273 \times Pd}$	**0.13**	mg/m^3

Process at time of sampling

Spray bonding agent to rail damper bars

Substances in use at time of sampling
Spraying

Other information
Velocity Profile m/s 5.3, 5.0, 4.9, 4.8, 5.0. 4.9, 4.7, 4.8, 4.8, 4.6
Average 4.9m/s Volume 4988m^3/hr
0.65grams/hour

APPENDIX 2
RESULTS

Particulate Emission Calculations (Values taken from raw data sheets)

Location:	Spray booth
Date of Sample:	09-Nov-10
Test No:	2
Filter No:	GFA 7112

Absolute temperature at meter (Tm)		291	K
Absolute temperature in duct (Td)		295	K
Total pressure in duct (Pd)		99.9	kPa
Total pressure at meter (Pm)		92.1	kPa
Temperature/Pressure correction factor =	$\frac{Pd \times Tm}{Pm \times Td}$ (CF)	1.07	
Total volume sampled at meter (Vm)		0.644	m^3
Quantity of air at nozzle =	$\frac{Vm}{CF}$ (Qn)	0.60	m^3
Particulate weighed on filter (W)		0.097	mg
Particulate concentration (nominal) = W/Qn		0.16	mg/m^3
Correction to STP =	$\frac{W \times Td \times 101.3}{Qn \times 273 \times Pd}$	**0.18**	mg/m^3

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Process at time of sampling

Spray bonding agent rail damper bars

Substances in use at time of sampling
Spraying

Other information
Velocity Profile m/s 5.3, 5.0, 4.9, 4.8, 5.0. 4.9, 4.7, 4.8, 4.8, 4.6
Average 4.9m/s Volume 4988m^3/hr
0.90grams/hour