



MALDON DISTRICT
COUNCIL

Environmental Permit

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

Installation address:	Universal Services Beckingham Business Park Tolleshunt Major Maldon Essex CM9 8LZ
Operator:	Colin Albert Rhodes, Susan Jane Rhodes, Stewart Reagan and Elaine Helen Reagan (trading as Universal Services) Universal Services Beckingham Business Park Tolleshunt Major Maldon Essex CM9 8LZ
Permit reference:	MLD/EPR/B/005

Permit Issued by:

Environment Services
Maldon District Council
Princes Road
Maldon
Essex
CM9 5DL

Telephone: (01621) 875817
Fax: (01621) 875899
Email: contact@maldon.gov.uk
Website: www.maldon.gov.uk

The Address for all correspondence in relation to this Permit

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Status log

Detail	Date	Comment
<i>Application</i>	<i>3rd December 2010</i>	<i>Duly made</i>
<i>Draft Permit</i>	<i>16th March 2011</i>	<i>Minor amendments</i>
<i>Permit</i>	<i>8th April 2011</i>	<i>Issued</i>
<i>Draft Permit</i>	<i>17th March 2014</i>	<i>PG6/45(11) IED Permit</i>

Introductory Note

These introductory notes are not Environmental Permit conditions; however they do provide useful information about the Environmental Permitting Regulations:

The following Permit is issued under Regulation 35(2)(h) of the Environmental Permitting (England and Wales) Regulations 2010 (S.I 2010 No.675) (as amended), ("the EPR") to operate a scheduled installation carrying out an activity, or activities covered by the description in Schedule 14 of the EPR, to the extent authorised by the Permit.

Conditions within this Permit detail the requirements of the Industrial Emissions Directive, for the management and operation of the installation, to prevent, or where that is not practicable, to reduce emissions.

In determining compliance requirements, the Operator should pay particular attention to relevant sections of the LAPPC Process Guidance note (PG6/45(11) – Revised June 2013), and any other relevant guidance. Techniques include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.

Note that the Permit requires the submission of certain information to the Regulator, and in addition, the Regulator has the power to seek further information at any time under Regulation 60 of the EPR Regulations provided that the request is reasonable.

Public Registers

Information relating to Permits, including the application, is available on public registers in accordance with the EPR. Certain information may be withheld from the public registers where it is commercially confidential, or if it is in the interest of national security to do so.

Variations to the Permit

The Regulator may vary the Permit in the future, by serving a variation notice on the Operator. Should the Operator want any of the conditions of the Permit to be changed, a formal application must be submitted to the Regulator (the relevant forms are available from the Regulator). The Status Log includes a summary of the Permits and variations issued up to that point in time and state whether a consolidated version of the Permit has been issued.

Transfer of the Permit or part of the Permit

Before the Permit can be wholly or partially transferred to another Operator, an application to transfer the Permit has to be made jointly by the existing and proposed Operators. A transfer will not be approved if the Regulator is not satisfied that the proposed Permit holder will be the person having control over the operation of the installation, or will not comply with the conditions of the transferred Permit. In addition, if the Permit authorises the Operator to carry out a specified waste management activity, the transfer will not be approved if the Regulator does not consider the proposed Permit holder to be a 'fit and proper person' as required by the EPR.

Talking to us

Please quote the permit number if you contact the Regulator about this permit. To give a notification under this permit, please use the contact details on the front cover.

Description of the installation and regulated activity

This description of the installation and the regulated activity are not environmental permit conditions, however they do provide useful information about the installation and the activities undertaken. It also provides a reference point in relation to any substantial or non-substantial changes.

Colin Albert Rhodes, Susan Jane Rhodes, Stewart Reagan and Elaine Helen Reagan (trading as Universal Services) produce high quality institutional sports equipment.

Metal raw materials are machined to size and welded together to form sports equipment or component parts of sports equipment such as climbing frames and trampolines. Metal parts are degreased prior to painting or powder coating. Coated items are then assembled and wrapped for dispatch.

The activity regulated by this permit is metal parts degreasing in a Vapasol AMC vapour-degreasing unit. Vapasol AMC is a dichloromethane based volatile organic compound, and is an R40 Risk Phrase material.

Metal items for cleaning are loaded into a metal basket, which is then loaded into the degreasing machine using a mechanical hoist. The degreasing machine is a metal tank containing a sump in which a liquid organic solvent is heated to boiling point. The boiling point is determined by the solvent used and is thermostatically controlled. The boiling solvent forms a layer of solvent vapour above the liquid solvent, the two being separated by a perforated metal platform. The basket of items to be degreased is lowered into the solvent vapour layer and rests on the perforated platform. The solvent vapour encompasses the parts in the basket and oil and grease contamination is removed as the vapour condenses on the metal parts. The condensed solvent runs off the metal and back into the sump, taking the oils and grease with it.

Refrigerated cooling coils near the top of the degreasing unit aim to keep the solvent inside the plant during the cleaning process and when the basket of cleaned metal is removed. An additional roller shutter helps to contain solvent during the cleaning process and when the plant is not in use. Rim extraction at the top of the plant aims to capture any solvent vapour dragged past the cooling coils when the basket of cleaned work is removed. Captured solvent vapour is exhausted to atmosphere 10.5 metres above ground level without abatement. Dirty solvent is periodically removed from the tank for disposal.

Schedule of plant and equipment	
Building / Area / Activity	Components / notes
Area 1	Degreasing plant, comprising: <ul style="list-style-type: none"> ▪ Vapasol AMC vapour degreasing unit with a top surface area of 3500mm x 950mm. ▪ Roller shutter top. ▪ Chiller unit. ▪ Exhaust stack. Manufacturing area, including: <ul style="list-style-type: none"> ▪ Spraybooths, paint ovens, racking and assembly areas.
Area 2	Manufacturing area, including: <ul style="list-style-type: none"> ▪ CNC machining, woodworking and racking.
Area 3	Manufacturing area, including: <ul style="list-style-type: none"> ▪ Lathes, saws, welding and racking.

Environmental Permit



Permit Reference Number:
MLD/EPR/B/005

Maldon District Council ("the Regulator") in exercise of its powers under the Environmental Permitting (England and Wales) Regulations 2010 (SI 2010 No 675) (as amended), hereby authorises **Colin Albert Rhodes, Susan Jane Rhodes, Stewart Reagan and Elaine Helen Reagan (trading as Universal Services)** ("the Operator").

Of/ whose Registered Office is:
Universal Services
Beckingham Business Park
Tolleshunt Major
Maldon
Essex
CM9 8LZ

to operate an installation at:
Universal Services
Beckingham Business Park
Tolleshunt Major
Maldon
Essex
CM9 8LZ

The Operator is authorised to carry out the following activities* to the extent authorised by and subject to the conditions of this Permit.

1. Surface cleaning using substances or preparations which because of their content of volatile organic compounds classified as carcinogens, mutagens or toxic to reproduction under Directive 67/548/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances(a) are assigned or need to carry one or more of the risk phrases R45, R46, R49, R60 or R61, or halogenated VOCs which are assigned or need to carry the risk phrase R40.

This Permit shall be subject to replacement, variation or amendment as may be considered appropriate by Maldon District Council, at any time, according to the provisions of Regulation 20 of the EPR.

* This Permit is given in relation to the requirements of the Environmental Permitting Regulations. It must not be taken to replace any responsibilities you may have under Workplace Health and Safety legislation. Nothing in this Permit grants or implies any consent under the Town and Country Planning Act.

Signed

Dated this day

Shirley Hall
Environmental Health Manager
The Authorised Officer for this purpose

Conditions

The following are Environmental Permit conditions and are legal requirements.

Emission Limits

1. The Operator must comply with the requirements of condition 3 for waste gases and the fugitive emission limits, and condition 4 for designated hazard statement materials.
2. The Operator shall report on consumption and compliance with the solvent emission limits of this permit annually. Data shall be reported as follows:
 - a) on a calendar year basis, and;
 - b) by 31st January each year, and;
 - c) In accordance with schedule 3 of this permit.
3. The Operator shall demonstrate compliance with the emission limit in waste gases and the fugitive emission limits:

Row	VOC in waste gases Emission	Emission limits/ requirement VOC expressed as total mass of organic carbon	Fugitive emission values	Monitoring
1	Surface cleaning activities: Solvent consumption 1 – 5 tonnes of designated hazard statement materials All waste gases	VOC expressed as total mass of individual designated hazard statement materials 20 mg/Nm ³	15% of solvent input	Abated releases: Continuous monitoring and recording PLUS Manual extractive testing Unabated releases: Manual extractive testing
2	Surface cleaning activities Solvent consumption 5 tonnes or more of designated hazard statement materials All waste gases	VOC expressed as total mass of individual designated hazard statement materials 20 mg/Nm ³	10% of solvent input	
3	Surface cleaning activities Solvent consumption 2 – 10 tonnes of any other VOC All waste gases	VOC expressed as total mass of organic carbon 75 mg/Nm ³	20% of solvent input	
4	Surface cleaning activities Solvent consumption 10 tonnes or more of any other VOC All waste gases	VOC expressed as total mass of organic carbon 75 mg/Nm ³	15% of solvent input	

4. The Operator shall replace, control contain and limit designated hazard statement materials used in the installation as follows:

All Directive installations	
1. Materials designated because of their VOC content: <ul style="list-style-type: none"> ➤ hazard statement H340, H350, H350I, H360D, or H360F ➤ until 1 Jun 2015: risk phrases R45, R46, R49, R60, or R61 	
Requirements: Replace as far as possible (Taking into account guidance under Article 64 of the industrial emissions Directive. See note 3 and Appendix 1) by less harmful substances or mixtures.	Timescale: Installations must comply within the shortest possible time
Control under contained conditions as far as technically and economically feasible to safeguard public health and the environment, normally, in accordance with the guidance provided within Section 5 of the note.	Timescale: Immediately (and see note 1 below)
Limit - where the sum of the mass flows of all the discharges of all the compounds causing the designated labelling is greater or equal to 10g/h, a limit value of 2mg/Nm ³ for the mass sum of the individual compounds must apply.	Monitoring: Manual extractive testing

2. Materials designated because of their halogenated VOC content: ➤ hazard statements H341 or H351 ➤ until 1 Jun 2015 : risk phrases R40, or R6	
Requirements: Control under contained conditions as far as technically and economically feasible to safeguard public health and the environment, normally, in accordance with the guidance provided within Section 5 of the note.	Timescale: Immediately (and see note 1 below)
Limit - where the sum of the mass flows of all the discharges of all the compounds causing the designated labelling is greater or equal to 100 g/h, a limit value of 20mg/Nm ³ for the mass sum of the individual compounds must apply.	Monitoring: Manual extractive testing
<p>Note 1 - substances or mixtures which are classified after the date of publication of this note as designated materials because of their VOC content, must apply the replace, control and limit requirements above within the shortest possible time from the date at which substances or mixtures became/become designated materials. In determining the "shortest possible time", the operator will need to justify their timetables taking account of the guidance in the relevant chapter of the appropriate Guidance Manual.</p> <p>Note 2 - until 1 June 2015 "hazard statement" materials will, broadly, also be known as "risk phrase" materials. After 1st June 2015, only the term "hazard statement" materials will apply.</p> <p>Note 3 - the European Commission have published information on substituting and containing designated solvents.</p>	

5. If compliance is breached, it must be restored within the shortest possible time. For accidents and incidents significantly affecting the environment the Regulator must be notified in accordance with conditions 6, 7, 8 and 9, 10, 11 and 12. In addition, further possible incidents or accidents must be prevented.
6. The Operator shall notify the regulator at least 7 days before any periodic monitoring exercise to determine compliance with emission limit values. The Operator shall state the provisional time and date of monitoring, pollutants to be tested and the methods to be used.
7. The results of non-continuous emission testing shall be forwarded to the Regulator within 8 weeks of completion of the sampling.
8. Adverse results from any monitoring activity (both continuous and non-continuous) shall be investigated by the Operator as soon as the monitoring data has been obtained. The operator shall:
 - a) identify the cause and take corrective action;
 - b) clearly record as much detail as possible regarding the cause and extent of the problem, and the remedial action taken;
 - c) re-test to demonstrate compliance as soon as possible; and inform the regulator of the steps taken and the re-test results.
9. In the case of abnormal emissions, malfunction or breakdown leading to abnormal emissions the operator shall:
 - a) investigate and undertake remedial action immediately;
 - b) adjust the process or activity to minimise those emissions; and
 - c) promptly record the events and actions taken.
10. The Regulator shall be informed without delay, whether or not there is related monitoring showing an adverse result:
 - a) if there is an emission that is likely to have an effect on the local community; or
 - b) in the event of the failure of key arrestment plant, for example, bag filtration plant or scrubber units.
11. The Operator shall provide a list of key arrestment plant and should have a written procedure for dealing with its failure, in order to minimise any adverse effects.

12. In cases of non-compliance causing immediate danger to human health, or threatening to cause an immediate significant adverse effect upon the environment, operation of the activity must be suspended. All of following criteria should be taken into account:
- the toxicity of the substances being released;
 - the amount released;
 - the location of the installation; and
 - the sensitivity of the receptors.
13. For emission and fugitive limits periodic measurements of VOC, at least three readings must be obtained during each measurement exercise. VOC emission limit values shall be considered to be complied with if, in one monitoring exercise:
- the average of all the readings does not exceed the emission limit values, and
 - none of the hourly averages exceeds the emission limit value by more than a factor of 1.5*.
- Where continuous monitoring is carried out to demonstrate compliance with VOC emission limits:
- none of the averages over 24 hours of normal operation exceeds the emission limit values, and
 - none of the hourly averages exceeds the emission limit values by more than a factor of 1.5.*
- * the hourly average of the 30 minute means value may be used to demonstrate compliance. Where monitoring does not meet the requirements of a) or b), then no result should exceed the emission concentration limits specified.
14. The introduction of dilution air to achieve emission concentration limits should not be permitted.
15. Installations with two or more activities Installations where two or more of the activities in Annex VII, Part 1 of the industrial emissions Directive are carried out, each of which exceeds the threshold in Annex VII, Part 2 of the industrial emissions Directive must:
- as regards to designated hazard statement materials, meet the requirements specified in condition 8, for each activity individually;
 - as regards all other substances, either:
 - meet the requirements for each activity individually; or
 - have total emissions not exceeding those that would have resulted had point (i) been applied.
- When applying 2 (ii) above, the solvent management plan should be completed to determine total emissions from all activities concerned. That figure must then be compared with the total emissions from the installation that would have resulted had the requirements of Annex VII, Part 2 of the industrial emissions Directive been met for each activity separately.
16. All appropriate precautions shall be taken to minimise emissions during start up and shut down.

Legal definitions

17. 'Existing installation' means an installation in operation on 29th March 1999 or which was granted a permit before 1st April 2001 or the operator of which submitted a complete application for c permit before 1st April 2001, provided that that installation was put in operation no later than April 2002.

18. 'Substantial change' means a change in the nature or functioning, or an extension, of an installation which may have significant negative effects on human health or the environment Following a substantial change, compliance with the emission limits requirements of this permit must be re-verified.
19. 'Substantial change' also means a change of the maximum mass input of organic solvents by an existing installation averaged over 1 day, where the installation is operated at its design output under conditions other than start up and shut down operations and maintenance of equipment shall be considered as substantial if it leads to an increase of emissions of volatile organic compounds of more than:
 - a). 25 % for an installation carrying out SE printing activities with a solvent consumption of less than 25 tonnes per year or SE coating activities with a solvent consumption of less than 15 tonnes per year;
 - b). 10% for all other installations.
20. Where an existing installation undergoes a substantial change, or falls within the scope of the Solvent Emissions Directive for the first time following a substantial change, that part of the installation which undergoes the substantial change shall be treated either as a new installation or as an existing installation, provided that the total emissions of the whole installation do not exceed those that would have resulted had the substantially changed part been treated as a new installation.
21. 'Waste gases' means the final gaseous discharge containing volatile organic compounds or other pollutants from a stack or abatement equipment into air;
22. 'Mixture' means mixture as defined in Article 3(2) of Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency.
23. 'Consumption' means the total input of organic solvents into an installation per calendar year, or any other 12-month period, less any volatile organic compounds that are recovered for re-use;
24. 'Input' means the quantity of organic solvents and their quantity in mixtures used when carrying out an activity, including the solvents recycled inside and outside the installation, and which are counted every time they are used to carry out the activity;
25. 'Re-use' means the use of organic solvents recovered from an installation for any technical or commercial purpose and including use as a fuel but excluding the final disposal of such recovered organic solvent as waste;
26. 'Contained conditions' means conditions under which an installation is operated so that the volatile organic compounds released from the activity are collected and discharged in a controlled way either via a stack or abatement equipment and are, therefore, not entirely fugitive;
27. 'Start-up and shut-down operations' means operations excluding regularly oscillating activity phases whilst bringing an activity, an equipment item or a tank into or out of service or into or out of an idling state.

Interpretations and Explanatory Notes

These interpretations and explanatory notes does not form part of your Environmental Permit conditions, however they do provide useful information about the Environmental Permitting Regulations:

In relation to this Permit, the following expressions shall have the following meanings:

<i>“Activity”</i>	An activity listed in Part 2 of Schedule 1 to the EP Regulations which will form part of an EP installation or be a mobile plant
<i>“The EPR / EP Regulation”</i>	Means the Environmental Permitting (England and Wales) Regulations 2010 S.I. 2010 No.675 (as amended) and words and expressions defined in the EPR shall have the same meanings when used in this Permit save to the extent they are explicitly defined in this Permit.
<i>“Change in Operation”</i>	In relation to an installation or mobile plant, a change in its nature or functioning or an extension which may have consequences for the environment.
<i>“Enforcement notice”</i>	A notice served by a local authority to enforce compliance with the permit conditions or require remediation of any harm following a breach of any condition.
<i>“Installation”</i>	A stationary technical unit where one or more activities listed in Part 2 of Schedule 1 to the EP Regulations are carried out and any other location on the same site where any other directly-associated activities are carried out, and any activities that are technically linked. The terms ‘regulated facility’ and ‘installation’ are, in effect, interchangeable for A(2) and B activities.
<i>“Operator”</i>	The person who has control over the operation of the installation/regulated facility (EP Regulation 7).
<i>“Permit”</i>	A permit granted under EP Regulation 13 by a local authority allowing the operation of an installation subject to certain conditions.
<i>“Pollution”</i>	Any emission as a result of human activity which may be harmful to human health or the quality of the environment, cause offence to any human senses, result in damage to material property, or impair or interfere with amenities and other legitimate uses of the environment (EP Regulation 2(1)).
<i>“Revocation notice”</i>	A notice served by the Regulator under EP regulation 22 revoking all or part of a permit.
<i>“Permitted Installation”</i>	Means the activities and the limits to those activities described in this Permit.
<i>“Monitoring”</i>	Includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, tests and surveys.
<i>“MCERTS”</i>	Means the Environment Agency’s Monitoring Certification Scheme.
<i>“Fugitive Emission”</i>	Means an emission to air or water (including sewer) from the Permitted installation that is not controlled by an emission limit imposed by a condition of this Permit.
<i>“Regulator”</i>	Means any officer of Maldon District Council who is authorised under Section 108(1) of the Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in Section 108(1) of that Act.
<i>“Best Available Techniques (BAT)”</i>	<p>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 that is not practical, generally to reduce emissions and the impact on the environment as a whole.</p> <p>For those purposes: "Available techniques" means those techniques which have been developed on a scale which allows implementation in the relevant industrial sector, under 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;</p> <p>"Best" means, in relation to techniques, the most effective in achieving a high general level of protection of the environment as a whole;</p> <p>"Techniques" includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned. Schedule 2 of the Regulations shall have effect in relation to the determination of best available techniques.</p>

Where any condition of this Permit refers to the whole or parts of different documents, in the event of any conflict between the wording of such documents, the document with the most recent publication date shall be taken to be the most appropriate document to be used.

Any person who is aggrieved by the conditions attached to a Permit can appeal to the Secretary of State for Environment, Food & Rural Affairs. Appeals must be received by the Secretary of State no later than 6 months from the date of the decision (the date of the Permit).

Appeals relating to installations in England should be received by the Secretary of State for Environment, Food & Rural Affairs. The address is as follows;

The Planning Inspectorate
Environment Team, Major and Specialist Casework
Room 4/04 – Kite Wing
Temple Quay House
2 The Square
Temple Quay
Bristol, BS1 PN

The appeal must be in the form of a written notice or letter stating that the person wishes to appeal and listing the condition(s) which is/are being appealed against. The following five items must be included;

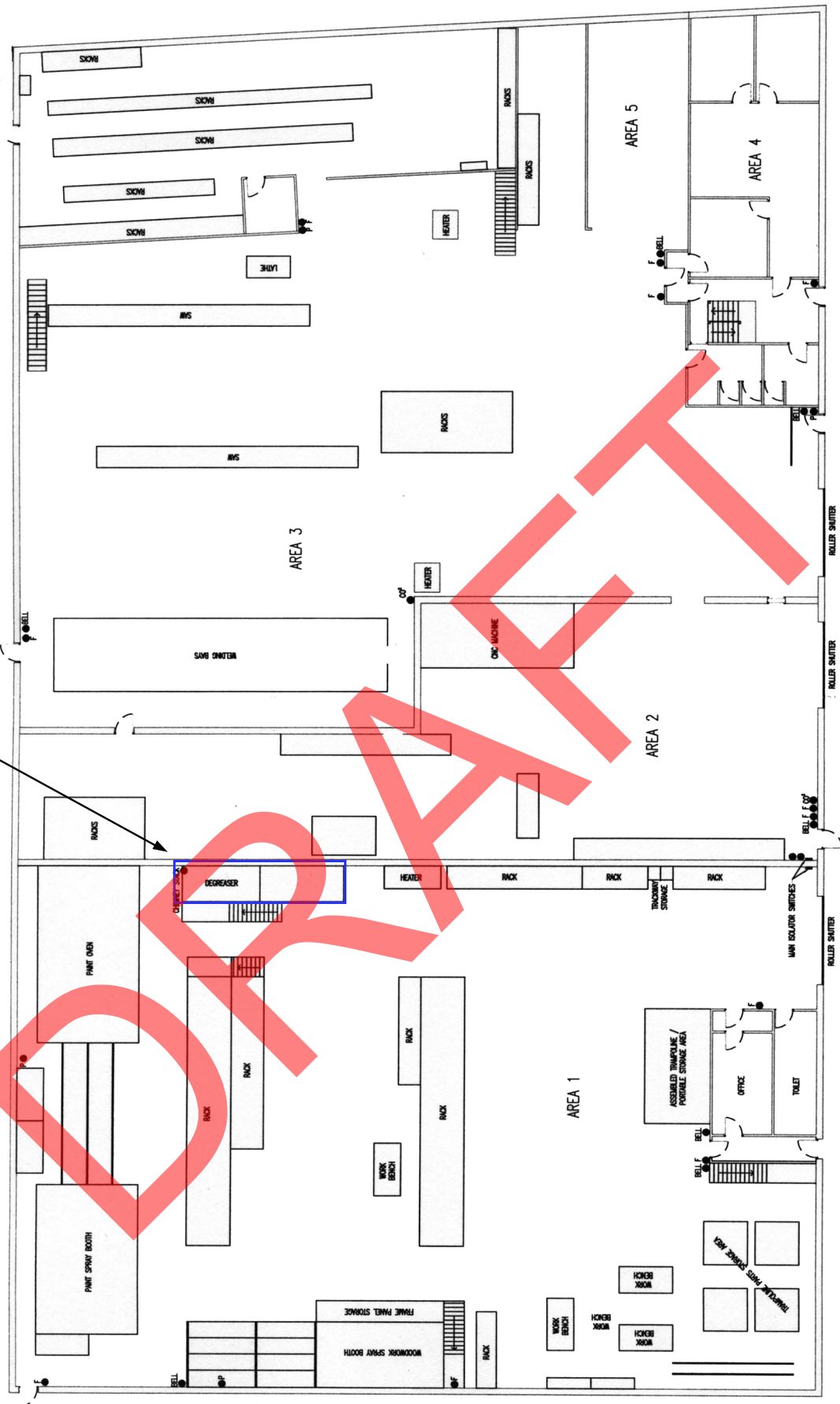
- (a) A statement of the ground of appeal;
- (b) A copy of any relevant application;
- (c) A copy of any relevant Permit;
- (d) A copy of any relevant correspondence between the person making the appeal (“the appellant”) and the Council;
- (e) A statement indicating whether the appellant wishes the appeal to be dealt with:
 - By a hearing attended by both parties and conducted by an inspector appointed by the Secretary of State; or
 - By both parties sending the Secretary of State written statements of their case (and having the opportunity to comment upon one another’s statements).

At the same time, the notice of appeal and documents (a) and (e) must be sent to the Council, and the person making the appeal should inform the appropriate Secretary of State that this has been done.

- An appeal will not 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 other conditions not subject to the appeal and to direct the local authority to either vary any of these conditions or to add new conditions.



Site	Universal Services		
Project	Permit application		
Drawing	Schedule 1	No.	MLD/EPR/B/005/01
Date	15 th February 2011	Scale	Not to scale



Emission point 'A'

Site

Universal Services

Project

Permit application

Drawing

Schedule 2

No.

MLD/EPR/B/005/02

Date

15th February 2011

Scale

Not to scale



MALDON DISTRICT COUNCIL

Solvent Management Plan

The Solvent Management Plan provides definitions and calculations to demonstrate compliance with the VOC requirements of this Permit. The use of the standard definitions and calculations also ensures consistency of VOC compliance across installations with an industrial sector.

The definitions provided must be used in all calculations relating to the Solvent Management Plan (SMP).

- For SED installations using the emission and fugitive limits, the SMP should be used for determining the fugitive emissions.

The operator shall forward an emission reduction plan as part of the SMP, which includes in particular:

- A full breakdown of solvent inputs and outputs
- The determination of the annual actual solvent emission
- The determination of the fugitive emission
- Decreases in the average solvent content of the total input; and/or
- Increased efficiency in the use of solids to achieve a reduction of the total emissions from the installation.

Determination of Solvent Consumption

A determination of the organic solvent consumption, the total mass of organic solvent Inputs minus any solvents sent for reuse/recovery off-site, should be made and submitted to the regulator annually, preferably to coincide with the operators stocktaking requirements, in the form of a mass balance in order to determine the annual actual consumption of organic solvent (C):

Where: $C = I1 - O8$

I1 Total quantity of organic solvents, or their quantity in preparations purchased which are used as input into the process/activity.

A calculation of the purchased organic solvent Input (I1) to the process/activity, is carried out by recording:

1. The mass of organic solvent contained in inks, coatings, diluents and cleaners in the initial stock (IS) at the start of the accounting period; plus
2. The mass of organic solvent contained in inks, coatings, diluents and cleaners in the purchased stock (PS) during the accounting period.
3. Minus the mass of organic solvent contained in inks, coatings, diluents and cleaners in the final stock (FS) at the end of the accounting period.

$Total\ Organic\ Solvent\ Input\ (I1) = IS + PS - FS$

Determination of Total emission limit

Compliance is achieved if the Total Emission from the activity expressed in solvent emissions per unit of product, or otherwise as stated is equal to or less than the Total Emission Limit Value,

Where Total Emission is equal to the mass of solvent released in waste gases Plus the fugitive emissions determined above

Total Emission = O1 + Fugitive (See above)

Determination of Fugitive VOC Emissions

To demonstrate compliance with fugitive emission values in Section 2 the operator must determine the fugitive emissions (F) from the installation using the following:

$$F = I_1 - O_1 - O_5 - O_6 - O_7 - O_8$$

or

$$F = O_2 + O_3 + O_4 + O_9$$

This quantity can be determined by direct measurement of the quantities. Alternatively, an equivalent calculation can be made by other means, for instance by using the capture efficiency of the process.

The Fugitive Emission value as a percentage of the Solvent Input (I) is determined by

$$\text{Fugitive Emission Value} = 100 \times F/I$$

Where the Solvent Input (I) = $I_1 + I_2$ (determined as part of the Solvent Management Plan)

Fugitive emission values must be determined for each installation, once completed, it need not be repeated until the equipment is modified.

Definitions:

The following definitions provide a framework for the mass balance calculations used in determining compliance.

Inputs of Organic Solvent in the time frame over which the mass balance is being calculated (I)

- I_1 The quantity of organic solvents, or their quantity in preparations purchased which are used as input into the process/activity (including organic solvents used in the cleaning of equipment, but not those used for the cleaning of the products).
- I_2 The quantity of organic solvents or their quantity in preparations recovered and reused as solvent input into the process/activity. (The recycled solvent is counted every time it is used to carry out the activity.) Outputs of Organic Solvents in the time frame over which the mass balance is being calculated (O)
- O_1 Emissions in waste gases.
- O_2 Organic solvents lost in water, if appropriate taking into account waste water treatment when calculating O_5 .
- O_3 The quantity of organic solvents which remains as contamination or residue in products output from the process/activity.
- O_4 Uncaptured emissions of organic solvents to air. This includes the general ventilation of rooms, where air is released to the outside environment via windows, doors, vents and similar openings.
- O_5 Organic solvents and/or organic compounds lost due to chemical or physical reactions. (Including for example those which are destroyed, e.g. by thermal oxidation or other waste gas or waste water treatments, or captured, e.g. by adsorption, as long as they are not counted under O_6 , O_7 or O_8).
- O_6 Organic solvents contained in collected waste.
- O_7 Organic solvents, or organic solvents contained in preparations, which are sold or are intended to be sold as a commercially valuable product.

- O₈ Organic solvents contained in preparations recovered for reuse but not as input into the process/activity, as long as not counted under O₇.
- O₉ Organic solvents released in other ways.

