Permit with introductory note

Pollution Prevention and Control Regulations 2000

Albemarle UK Ltd

Teesport
Middlesbrough
TS6 7SA

Permit number

BU5798

Contents

Introductory note

This introductory note does not form a part of the Permit

The following Permit is issued under Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I.2000 No.1973), as amended, ("the PPC Regulations") to operate an installation carrying out activities covered by the description in Section 4.1 A(1) (a) (ii) and (iv) and in Section 5.4 A(1) (a) in Part 1 to Schedule 1 of the PPC Regulations, to the extent authorised by the Permit:

Producing organic chemicals such as:- organic compounds containing oxygen such as alcohols, aldehydes, ketones, carboxylic acids, esters, ethers, peroxides, phenols, epoxy resins; organic compounds containing nitrogen such as amines, amides, nitrous-, nitro- or azo-compounds, nitrates, nitriles, nitrogen heterocyclics, cyanates, isocyanates, di-isocyanates and di-isocyanate prepolymers; recovering by distillation of any oil or organic solvent.

Aspects of the operation of the installation which are not regulated by conditions of the Permit are subject to the condition implied by Regulation 12(10) of the PPC Regulations, i.e. the Operator shall use the best available techniques for preventing or, where that is not practicable, reducing emissions from the installation.

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

In some sections of the Permit conditions require the Operator to use Best Available Techniques (BAT), in each of the aspects of the management of the installation, to prevent and where that is not practicable to reduce emissions. The conditions do not explain what is BAT. In determining BAT, the Operator should pay particular attention to relevant sections of the IPPC Sector guidance, appropriate Horizontal guidance (H1 to H4) and other relevant guidance.

A non-technical description of the installation is given in the Application, but the main features of the installation are as follows.

The Operator principally carries out reactions of alcohols with fatty acids and natural oils to manufacture a range of esters and amides which are produced as a variety of derivatives, and are blended up and dissolved in a range of solvents, surfactants and natural oils. The activities typically involve a reaction stage which is heated or cooled and may be under reflux and employ a catalyst, followed by a modification and/or distillation stage, which may be under vacuum and use a water entrainer to leave a pure dry product. This may be blended up in organic or aqueous solution to meet customers' specification requirements. Oil recovery operations involve the processing of used thermal fluids by aqueous washing and distillation, leaving contaminants in a reactor heel.

The installation is a small multi-process plant that typically operates in short runs and campaigns to make 30 -40 products in a year, using 6 reactors of varying sizes, each venting through water cooled condensers to a dual-tower aqueous scrubbing system. The principal uses of its products are oilfield chemicals and as precursors for other organic chemicals, including polymers. Used thermal fluids are re-cycled to users and this is a beneficial alternative to the destruction of the used fluids.

The installation includes services such as process heating, involving a gas oil fired thermal fluid heater, cooling water re-circulation, product drumming off and warehousing, analytical laboratories, a bunded tank farm storing raw materials, intermediates, products and wastes, and a fire water system.

The main releases from the activities are relatively small quantities of volatile organic compounds (VOCs) released to air from the scrubbing system, and small amounts of nitrogen oxides and sulphur dioxide from the process heating unit. Aqueous waste with significant organic content, including water removed from the reaction/distillation activities and used scrubbing fluids is collected and taken by tanker to a local licensed waste water treatment works, whilst surface water collected in bunded areas, together with cooling system purge and treated sewage from site domestic facilities is batch pumped to the nearby Dabholme Gut, a tidal arm of the river Tees.

Note that the Permit requires the submission of certain information to the Agency (see Sections 4 and 5). In addition, the Agency has the power to seek further information at any time under regulation 28 to the PPC Regulations provided that it acts reasonably.

Other PPC Permits relating to this installation		
Permit holder	**Permit Number**	**Date of Issue**
None		

Superseded Licences/Authorisations/Consents relating to this installation		
Holder	**Reference Number**	**Date of Issue**
Albemarle UK Ltd	AI7831	15/10/93
Albemarle UK Ltd	AK3684	15/03/94
Albemarle UK Ltd	BH0844	29/03/00

Other activities may take place on the site of this installation which are not regulated under this Permit or any other PPC Permit referred to in the Table above.

Public Registers

Considerable information relating to Permits including the Application is available on public registers in accordance with the requirements of the PPC Regulations. Certain information may be withheld from public registers where it is commercially confidential or contrary to national security.

Variations to the Permit

This Permit may be varied in the future (by the Agency serving a Variation Notice on the Operator). If the Operator itself wants any of the Conditions of the Permit to be changed, it must submit a formal Application. The Status Log within the Introductory Note to any such Variation Notice will include summary details of this Permit, variations issued up to that point in time and state whether a consolidated version of the Permit has been issued.

Surrender of the Permit

Before this Permit can be wholly or partially surrendered, an Application to surrender the Permit has to be made by the Operator. For the application to be successful, the Operator must be able to demonstrate to the Agency that there is no pollution risk and that no further steps are required to return the site to a satisfactory state.

Transfer of the Permit or part of the Permit

Before the Permit can be wholly or partially transferred to another person, an Application to transfer the Permit has to be made jointly by the existing and proposed holders. A transfer will be allowed unless the Agency considers that the proposed holder will not be the person who will have control over the operation of the installation or will not comply with the conditions of the transferred Permit. If, however, the Permit authorises the carrying out of a specified waste management activity, the transfer will only be allowed if the proposed holder is also considered to be "a fit and proper person" as required by the PPC Regulations.

Talking to us

Please quote the Permit Number if you contact the Agency about this Permit.
To give a Notification under Condition 5.1.1, the Operator should use the Incident Hotline telephone number (0800 80 70 60) or any other number notified in writing to the Operator by the Agency for that purpose.

Status Log

Detail	Date	Comment
Application BU5798	Received 26/08/03	
Request to extend determination to 31/3/04	Request dated 11/12/03	Request accepted 22/12/03
Response to requests for information	Requests dated 16/1/04 and 21/1/04	Response dated 28/1/04, received on 10/2/04. Information included: New Product Approval Procedure, product details, condensers, scrubbing system, aqueous waste, benzene release and carbon adsorption practicalities. Further response dated 8/4/04, received on 14/4/04; information on the thermal fluid heater.
Further request to extend determination to 23/4/04	Request dated 31/3/04	Request accepted 8/4/04 to extend determination to 30/4/04
Permit determined	23/4/04	

End of Introductory Note.

ENVIRONMENT AGENCY

Permit

Permit number
BU5798

The Environment Agency (the Agency) in exercise of its powers under Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations (SI 2000 No 1973), hereby authorises
Albemarle UK Limited ("the Operator"),

Of/ whose Registered Office (or principal place of business) is

Teesport

Middlesbrough

Cleveland TS6 7SA

Company registration number 3650302

to operate an Installation at

Teesport
Middlesbrough
Cleveland TS6 7SA

to the extent authorised by and subject to the conditions of this Permit.

Signed	Date
	23rd April 2004

Graeme Hull

Authorised to sign on behalf of the Agency

Conditions

1 General

1.1 Permitted Activities

1.1.1 The Operator is authorised to carry out the activities and the associated activity specified in Table 1.1.1.

Table 1.1.1

Activity listed in Schedule 1 of the PPC Regulations / Associated Activity	Description of specified activity	Limits of specified activity
Section 4.1A(1)(a) Producing organic chemicals such as: (ii) organic compounds containing oxygen such as alcohols, aldehydes, ketones, carboxylic acids, esters, ethers, peroxides, phenols, epoxy resins; (iv) organic compounds containing nitrogen such as amines, amides, nitrous-, nitro- or azo-compounds, nitrates, nitriles, nitrogen heterocyclics, cyanates, isocyanates, di-isocyanates and di-isocyanate prepolymers;	Carrying out organic chemical reactions in a production facility comprising 6 reaction vessels and ancillary plant, including distillation columns, vapour condensers, blenders, coolers, storage tanks and two recirculating scrubbers	Receipt of raw materials and all processing operations through to storage and despatch of finished products. The specified activity includes 12 main reaction schemes/groups of products as listed in the application. Any proposed new products are subject to a New Product Approval Procedure and Management of Change Procedure, see Table 2.1.1. Also includes the handling, storage and despatch of wastes, principally liquid wastes
Section 5.4 A(1)(a) Recovering by distillation of any oil or organic solvent	The washing and distillation of contaminated heat transfer fluids in the same production facility	Receipt of contaminated fluids and all processing through to despatch of recovered fluids, including handling, storage and despatch of liquid wastes
Associated Activity	Providing necessary services for the specified activities	Vacuum, compressed air, fire water, cooling water and hot oil systems, the latter fuelled by low sulphur gas oil

1.1.2 Where waste on site is subjected to activities that are exempt from control under the Waste Management Licensing Regulations 1994 then the wastes controlled under condition 1.1.1, above, shall be clearly identified and kept separate from such exempt waste activities and a record shall be kept of where such exempt activities are conducted.

1.2 Site

1.2.1 The activities authorised under condition 1.1.1 shall not extend beyond the Site, being the land shown edged in green on the Site Plan at Schedule 5 to this Permit.

1.3 Overarching Management Condition

1.3.1 Without prejudice to the other conditions of this Permit, the Operator shall implement and maintain a management system, organisational structure and allocate resources that are sufficient to achieve compliance with the limits and conditions of this Permit.

1.4 Improvement Programme

1.4.1 The Operator shall complete the improvements specified in Table 1.4.1 by the date specified in that table, and shall send written notification of the date of completion of each requirement to the Agency within 14 days of the completion of each such requirement.

Table 1.4.1: Improvement programme

Reference	Requirement	Date
IP1	Conduct an assessment of quantitative monitoring methods and procedures of substances specified in Table 2.2.2 and released to air from points A1 and A4, for conformance with appropriate monitoring Standards such as CEN, ISO, BSI, etc, having regard to the Agency Sector Guidance for Speciality Organic Chemicals IPPC S2 4.02 and the hierarchy of Sampling and Analysis Standards presented. Submit a written programme reporting on the findings and proposed actions, describing methodologies to be used to the Agency.	31/9/2004
IP2	Carry out the first monitoring programme as proposed in the response to IP1, incorporating any changes and additions agreed with the Agency. During the monitoring programme, carry out a comparison with the gas detection tube methods used for process control, as described in the application. Report the results in writing to the Agency.	31/12/2004
IP3	Assess the establishment of an Environmental Management System having regard to relevant Agency and other guidance and standards and report the findings, including any proposals and timings to implement a suitable EMS.	31/8/2004
IP4	Calculate the bund capacity surrounding storage tanks V417 and V481 and compare this to the potential worst case loss and the Agency's standards for bunding given in its sector guidance for organic chemicals. Report the findings and propose any consequential improvements that are required.	31/9/2004

IP5	Evaluate and report on the potential for the use of a more efficient entraining agent for water removal from the main esterification process, ie with a view to reducing VOC emissions from this part of the activities.	30/8/2004
IP6	Evaluate and report on the potential for the use of a chiller unit as a form of BAT to improve condensation of VOCs on the esterification process.	31/12/2004
IP7	Study and report on the performance and efficiency of the hot oil process heating system , including its evaluation against what may be considered BAT for such a combustion device. This study shall include an assessment of appropriate Emission Limit Values for the system and shall be reported to the Agency.	31/12/2004
IP8	Consider and review the potential use of variable speed motor drives to reduce energy usage by the permitted installation and report the findings to the Agency, including any replacements proposed.	31/12/2004
IP9	Assess the fugitive losses from bulk storage tanks holding VOCs and report the findings, including any consequential actions proposed to reduce VOC losses.	31/3/2005
IP10	The operator shall carry an assessment of training needs in environmental awareness, including in the requirements of this Permit, identifying the posts for which such training is relevant and the scope and level of the training. The requirement to notify the Agency under the conditions of part 5 of this permit shall be included. A written report of detailing the results of this assessment and any proposed training package shall be submitted to the Agency. The training shall be prepared and be carried out for current staff within 12 months of the date of the Permit and new staff employed subsequently shall be given the training as part of their induction.	30/4/2005 and continuing
IP11	Submit a programme to improve drainage arrangements and procedures to maintain their integrity, including the routine inspection and testing of relevant structures, ie process flooring, bunds, drains and underground tanks. This shall include methods for inspections and tests to be undertaken and their scope, proposed month/year for each and a target time for rectifying any defects found. The programme shall consider replacing the soakaways on internal site roads with appropriate drainage connections.	31/3/2005
IP12	Carry out the first periodic waste minimisation audit and water use efficiency audit and submit to the Agency in accordance with condition 2.4.1.2. The audit shall include the principal solvent/water wastes and the audit of water use shall consider whether the continued use of water ring vacuum pumps is BAT considering the water used against alternative techniques.	30/9/2005
IP13	Perform an updated fire water containment study considering possible consequences of fire water release after a fire event, in terms of potential environmental impact, and report the findings to the Agency.	31/12/2005

1.4.2 Where the Operator fails to comply with any requirement by the date specified in Table 1.4.1 the Operator shall send written notification of such failure to the Agency within 14 days of such date.

1.5 Minor Operational Changes

1.5.1 The Operator shall seek the Agency's written agreement to any minor operational changes under condition 2.1.1 of this Permit by sending to the Agency: written notice of the details of the proposed change including an assessment of its possible effects (including waste production) on risks to the environment from the Permitted Installation; any relevant supporting assessments and drawings; and the proposed implementation date.

1.5.2 Any such change shall not be implemented until agreed in writing by the Agency. As from the agreed implementation date, the Operator shall operate the Permitted Installation in accordance with that change, and relevant provisions in the Application shall be deemed to be amended.

1.5.3 When the qualification "unless otherwise agreed in writing" is used elsewhere in this Permit, the Operator shall seek such agreement by sending to the Agency written notice of the details of the proposed method(s) or techniques.

1.5.4 Any such method(s) or techniques shall not be implemented until agreed in writing by the Agency. As from the agreed implementation date, the Operator shall operate the Permitted Installation using that method or technique, and relevant provisions in the Application shall be deemed to be amended.

1.6 Pre-Operational Conditions

1.6.1 There are no pre-operational conditions

1.7 Off-site Conditions

1.7.1 There are no off-site conditions

2 Operating conditions

2.1 In-Process Controls

2.1.1 The Permitted Installation shall, subject to the conditions of this Permit, be operated using the techniques and in the manner described in the documentation specified in Table 2.1.1, or as otherwise agreed in writing by the Agency in accordance with conditions 1.5.1 and 1.5.2 of this Permit.

Table 2.1.1: Operating techniques		
Description	**Parts**	**Date Received**
Application	The response to questions 2.1 and 2.2 given in sections 2.1 and 2.2 and on 29 un-numbered pages under the heading Albemarle IPPC 2.1 In-process Controls, plus plant and block diagrams Appendices 1 to 10 of the application	26/8/03
New Product Approval Procedure (NPAP)	The Operator has supplied its NPAP, part of the ISO 9001:2000 Quality Process 03, document AUKQP03, Issue 2 dated Jan 04, showing how it evaluates any proposed new products against the permit	10/2/04

2.2 Emissions

2.2.1 Emissions to Air, (including heat, but excluding Odour, Noise or Vibration) from Specified Points

2.2.1.1 This Part 2.2.1 of this Permit shall not apply to releases of odour, noise or vibration.

2.2.1.2 Emissions to air from the emission points in Table 2.2.1 shall only arise from the source(s) specified in that Table.

Table 2.2.1 : Emission points to air		
Emission point reference or description	**Source**	**Location of emission point**
A1	Production process, including reactors vented via condensers, direct vents from blenders and extraction and vacuum pump exhausts, all via scrubbing system	As shown in Figure 2.2.1.1 of the application
A4	Wanson hot oil heater gas exhaust	As shown in Figure 2.2.1.1 of the application
Dump tank vent described in section 2.1.2.2	Reactor dump tank gas vent, when pressure relief system operates	As described in section 2.1.2.2 of the application

2.2.1.3 The limits for emissions to air for the parameter(s) and emission point(s) set out in Table 2.2.2 shall not be exceeded.

Table 2.2.2 : Emission limits to air and monitoring				
Emission point reference	**Parameter**	**Limit (including Reference Period)[1]**	**Monitoring frequency**	**Monitoring method**
A1	Total amines, expressed as dimethylamine	40 mg/m3	Six monthly for first year, then annually	Note 2
A1	Total organic sulphides and mercaptans, expressed as hydrogen sulphide	2 mg/m^3	Six monthly for first year, then annually	Note 2
A1	Benzene	Note 2	Once during each Thermex recovery campaign for first year, then annually	Note 2
A1	Any individual Class A VOC, expressed as species	100 g/hour, average over batch cycle	Six monthly for first year, then annually	EN 13649
A1	Total Class B VOCs, expressed as carbon	2 kg/hour, average over batch cycle	Six monthly for first year, then annually	EN12619
A4	Oxides of nitrogen, expressed as nitrogen dioxide	Note 2	Annually	Note 2

Note 1: See Section 6 for reference conditions

Note 2: Monitoring methods and schedules to be agreed in writing by the Environment Agency on completion of Improvement Programme item IP1 and IP7, when the Agency will also set Emission Limit Values for these release points and parameters by varying the conditions of this permit.

2.2.1.4 No condition applies

2.2.2 Emissions to water (other than groundwater), including heat, from specified points

2.2.2.1 This Part 2.2.2 of this Permit shall not apply to releases of odour, noise or vibration or to releases to groundwater.

Emissions to Water (other than to Sewer)

2.2.2.2 Conditions 2.2.2.3 - 2.2.2.6 shall not apply to emissions to sewer.

2.2.2.3 Emissions to water from the emission point(s) specified in Table 2.2.4 shall only arise from the source(s) specified in that Table

Table 2.2.4: Emission point to water		
Emission Point Reference or description	**Source**	**Receiving Water**
W1 on Figure 2.2.1.1 of the application	Site drainage from site via effluent holding tanks	Dabholme Gut, tributary of river Tees

2.2.2.4 The limits for the emissions to water for the parameter(s) and emission point(s) set out in Table 2.2.5 shall not be exceeded.

2.2.2.5 Where a substance is specified in Table 2.2.5 but no limit is set for it, the concentration of such substance in emissions to water from the relevant emission point shall be no greater than the background concentration

Table 2.2.5 : Emission limits to water and monitoring				
Emission point reference	**Parameter**	**Limit (including Reference Period)**	**Monitoring frequency**	**Monitoring method[1]**
W1	Chemical Oxygen Demand	500 mg/litre	Each batch of effluent, before discharge	QCP 43
W1	PH	Minimum 5 Maximum 10	Each batch of effluent, before discharge	pH meter, QCP 5
W1	Suspended solids	150 mg/litre	Each batch of effluent, before discharge	QCP 42
W1	Oil and grease	None visible	Each batch of effluent, before discharge	Visual inspection

2.2.2.6 No condition applies

Emissions to sewer

2.2.2.7 There shall be no emissions to sewer from the installation.

2.2.2.8 No condition applies

2.2.2.9 No condition applies.

2.2.2.10 No condition applies

2.2.3 Emissions to groundwater

2.2.3.1 No emission from the Permitted Installation shall give rise to the introduction into groundwater of any substance in List I (as defined in the Groundwater Regulations 1998 (S.I. 1998 No. 2746)).

2.2.3.2 No emission from within the Permitted Installation shall give rise to the introduction into groundwater of any substance in List II (as defined in the Groundwater Regulations 1998 (S.I. 1998 No. 2746)) so as to cause pollution (as defined in the Groundwater Regulations 1998 (S.I. 1998 No. 2746)).

2.2.3.3 For substances other than those in List I or II (as defined in the Groundwater Regulations 1998 (SI 1998 No.2746)), the Operator shall use BAT to prevent or where that is not practicable to reduce emissions to groundwater from the Permitted Installation provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.4 Fugitive emissions of substances to air

2.2.4.1 The Operator shall use BAT so as to prevent or where that is not practicable to reduce fugitive emissions of substances to air from the Permitted Installation in particular from:

- storage areas
- buildings
- pipes, valves and other transfer systems
- open surfaces

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.4.2 The Operator shall use BAT so as to prevent or where that is not practicable to reduce emissions of litter from the Permitted Installation provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.5 Fugitive emissions of substances to water and sewer

2.2.5.1 Subject to condition 2.2.5.2 below, the Operator shall use BAT so as to prevent or where that is not practicable to reduce fugitive emissions of substances to water (other than Groundwater) and sewer from the Permitted Installation in particular from:

- all structures under or over ground
- surfacing
- bunding
- storage areas

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.5.2 There shall be no release to water that would cause a breach of an EQS established by the UK Government to implement the Dangerous Substances Directive 76/464/EEC.

2.2.6 Odour

2.2.6.1 The Operator shall use BAT so as to prevent or where that is not practicable to reduce odorous emissions from the Permitted Installation, in particular by:

- limiting the use of odorous materials
- restricting odorous activities
- controlling the storage conditions of odorous materials
- controlling processing parameters to minimise the generation of odour
- optimising the performance of abatement systems

- timely monitoring, inspection and maintenance
- employing, where appropriate, an approved odour management plan

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.2.7 Emissions to Land

2.2.7.1 This Part 2.2.7 of this Permit shall not apply to emissions to groundwater.

2.2.7.2 No emission from the Permitted installation shall be made to land.

2.2.8 Equivalent Parameters or Technical Measures

2.2.8.1 The Operator shall comply with the requirements specified in Table 2.2.11, which supplement or replace emission limit values in accordance with Regulation 12(8) of the PPC Regulations.

Table 2.2.11 Equivalent parameters and technical measures

Parameter or measure	Requirement or description of measure, and frequency if relevant
Test of emissions from A1 for total amines, ethyl formate, cyclohexane, total mercaptans, benzene, phenol, VOCs and other substances if appropriate.	Appropriate colour detection tubes to be used to test scrubber exhaust for the parameters shown, as relevant to production operations, to check effective performance of the condensing and scrubbing systems. The frequency shall be as proposed in the application when processes emitting these parameters are in operation. All test results shall be recorded and retained in accordance with permit condition 3.1 for Agency inspection.
Test of VOC/COD loading of scrubbing system circulating fluids	Appropriate checks to be made to avoid breakthrough of VOCs from scrubbing system
Emission of sulphur dioxide from A4	Use low sulphur gas oil in accordance with the Sulphur in Liquid Fuel Regulations

2.3 Management

2.3.1 A copy of this Permit and those parts of the application referred to in this Permit shall be available, at all times, for reference by all staff carrying out work subject to the requirements of the Permit.

Training

2.3.2 The Permitted Installation shall be supervised by staff who are suitably trained and fully conversant with the requirements of this Permit.

2.3.3 All staff shall be fully conversant with those aspects of the Permit conditions which are relevant to their duties and shall be provided with adequate professional technical development and training and written operating instructions to enable them to carry out their duties.

2.3.4 The Operator shall maintain a record of the skills and training requirements for all staff whose tasks in relation to the Permitted Installation may have an impact on the environment and shall keep records of all relevant training.

Maintenance

2.3.5 All plant and equipment used in operating the Permitted Installation, the failure of which could lead to an adverse impact on the environment, shall be maintained in good operating condition.

2.3.6 The Operator shall maintain a record of relevant plant and equipment covered by condition 2.3.5 and for such plant and equipment:

2.3.6.1 a written or electronic maintenance programme; and

2.3.6.2 records of its maintenance.

Incidents and Complaints

2.3.7 The Operator shall maintain and implement written procedures for:

2.3.7.1 taking prompt remedial action, investigating and reporting actual or potential non-compliance with operating procedures or emission limits and if such event occur;

2.3.7.2 investigating incidents, (including any malfunction, breakdown or failure of plant, equipment or techniques, down time, any short term and long term remedial measures and near misses) and prompt implementation of appropriate actions; and

2.3.7.3 ensuring that detailed records are made of all such actions and investigations.

2.4 Efficient use of raw materials

2.4.1 The Operator shall -

2.4.1.1 maintain the raw materials table or description submitted in response to Section 2.4 of the Application and in particular consider on a periodic basis whether there are suitable alternative materials to reduce environmental impact;

2.4.1.2 carry out periodic waste minimisation audits and water use efficiency audits. If such an audit has not been carried out in the 2 years prior to the issue of this Permit, then the first such audit shall take place within 2 years of its issue. The methodology used and an action plan for increasing the efficiency of the use of raw materials or water shall be submitted to the Agency within 2 months of completion of each such audit and a review of the audit and a description of progress made against the action plan shall be submitted to the Agency at least every 4 years thereafter; and

2.4.1.3 ensure that incoming water use is directly measured and recorded.

2.5 Waste Storage and Handling

2.5.1 The Operator shall design, maintain and operate all facilities for the storage and handling of waste on site such that there are no releases to water or land during normal operation and that emissions to air and the risk of accidental release to water or land are minimised.

2.6 Waste recovery or disposal

2.6.1 Waste produced at the Permitted Installation shall be recycled or recovered unless technically and/or economically impossible.

2.6.2 The Operator shall maintain the waste recovery or disposal table or description submitted in response to Section 2.6 of the Application and in particular identify the best practicable environmental options for waste disposal.

2.6.3 The Operator shall maintain and implement a system which ensures that a record is made of the quantity, composition, origin, destination (including whether this is a recovery or disposal operation) and where relevant removal date of any waste that is produced at the Permitted Installation.

2.7 Energy Efficiency

2.7.1 The Operator shall produce a report on the energy consumed at the Permitted Installation over the previous calendar year, by 31 January each year, providing the information required by condition 4.1.2.

2.7.2 The Operator shall maintain and update annually an energy management system which shall include, in particular, the monitoring of energy flows and targeting of areas for improving energy efficiency.

2.7.3 The Operator shall design, maintain and operate the Permitted Installation so as to secure energy efficiency, taking into account relevant guidance including the Agency's Energy Efficiency Horizontal Guidance Note H2 as from time to time amended. Energy efficiency shall be secured in particular by:

- ensuring that the appropriate operating and maintenance systems are in place;
- ensuring that all plant is adequately insulated to minimise energy loss or gain;
- ensuring that all appropriate containment methods, (e.g. seals and self-closing doors) are employed and maintained to minimise energy loss;
- employing appropriate basic controls, such as simple sensors and timers, to avoid unnecessary discharge of heated water or air;
- where building services constitute more than 5% of the total energy consumption of the installation, identifying and employing the appropriate energy efficiency techniques for building services, having regard in particular to the Building services part of the Agency's Energy Efficiency Horizontal Guidance Note H2; and
- maintaining and implementing an energy efficiency plan which identifies energy saving techniques that are applicable to the activities and their associated environmental benefit and prioritises them, having regard to the appraisal method in the Agency's Energy Efficiency Horizontal Guidance Note H2.

2.8 Accident prevention and control

2.8.1 The Operator shall maintain and implement when necessary the accident management plan submitted or described in response to Section 2.8 of the Application. The plan shall be reviewed at least every 2 years or as soon as practicable after an accident, whichever is the earlier, and the Agency notified of the results of the review within 2 months of its completion.

2.9 Noise and Vibration

2.9.1 The Operator shall use BAT so as to prevent or where that is not practicable to reduce emissions of noise and vibration from the Permitted Installation, in particular by:

- equipment maintenance, eg. of fans, pumps, motors, conveyors and mobile plant;
- use and maintenance of appropriate attenuation, eg. silencers, barriers, enclosures;
- timing and location of noisy activities and vehicle movements;
- periodic checking of noise emissions, either qualitatively or quantitatively; and
- maintenance of building fabric,

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

2.10 On-site Monitoring

2.10.1 The Operator shall maintain and implement an emissions monitoring programme which ensures that emissions are monitored from the specified points, for the parameters listed in and to the frequencies and methods described in Tables 2.2.2 and 2.2.5, unless otherwise agreed in writing, and that the results of such monitoring are assessed. The programme shall ensure that monitoring is carried out under an appropriate range of operating conditions.

2.10.2 No condition applies.

2.10.3 No condition applies.

2.10.4 No condition applies

2.10.5 The Operator shall notify the Agency at least 14 days in advance of undertaking monitoring and/ or spot sampling, where such notification has been requested in writing by the Agency.

2.10.6 The Operator shall maintain records of all monitoring taken or carried out (this includes records of the taking and analysis of samples instrument measurements (periodic and continual), calibrations, examinations, tests and surveys) and any assessment or evaluation made on the basis of such data.

2.10.7 After completion of Improvement Programme item reference IP1, monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme described in Table 2.2.2 and referred to in condition 2.10.1 of this Permit shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing.

2.10.8 There shall be provided:

2.10.8.1 safe and permanent means of access to enable sampling/monitoring to be carried out in relation to the emission points specified in Schedule 2 to this Permit, unless otherwise specified in that Schedule; and

2.10.8.2 safe means of access to other sampling/monitoring points when required by the Agency.

2.11 Closure and Decommissioning

2.11.1 The Operator shall maintain and operate the Permitted Installation so as to prevent or minimise any pollution risk, including the generation of waste, on closure and decommissioning in particular by:-

2.11.1.1 attention to the design of new plant or equipment;

2.11.1.2 the maintenance of a record of any events which have, or might have, impacted on the condition of the site along with any further investigation or remediation work carried out; and

2.11.1.3 the maintenance of a site closure plan to demonstrate that the installation can be decommissioned avoiding any pollution risk and returning the site of operation to a satisfactory state.

2.11.2 Notwithstanding condition 2.11.1 of this Permit, the Operator shall carry out a full review of the Site Closure Plan at least every 4 years.

2.11.3 The site closure plan shall be implemented on final cessation or decommissioning of the Permitted activities or part thereof.

2.11.4 The Operator shall give at least 30 days written notice to the Agency before implementing the site closure plan.

2.12 Multiple Operator installations

2.12.1 This is not a multi-Operator installation

2.13 Transfer to effluent treatment plant

2.13.1 No transfer from the Permitted Installation shall be made to effluent treatment plant.

2.13.2 No condition applies.

3 Records

3.1 The Operator shall ensure that all records required to be made by this Permit and any other records made by it in relation to the operation of the Permitted Installation shall:-

3.1.1 be made available for inspection by the Agency at any reasonable time;

3.1.2 be supplied to the Agency on demand and without charge;

3.1.3 be legible;

3.1.4 be made as soon as reasonably practicable;

3.1.5 indicate any amendments which have been made and shall include the original record wherever possible;

3.1.6 be retained at the Permitted Installation, or other location agreed by the Agency in writing, for a minimum period of 4 years from the date when the records were made, unless otherwise agreed in writing.

4 Reporting

4.1.1 All reports and written and or oral notifications required by this Permit and notifications required by Regulation 16 of the PPC Regulations shall be made or sent to the Agency using the contact details notified in writing to the Operator by the Agency.

4.1.2 The Operator shall, unless otherwise agreed in writing, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:-

4.1.2.1 in respect of the parameters and emission points specified in Table S2 to Schedule 2;

4.1.2.2 for the reporting periods specified in Table S2 to Schedule 2 and using the forms specified in Table S3 to Schedule 3;

4.1.2.3 giving the information from such results and assessments as may be required by the forms specified in those Tables; and

4.1.2.4 to the Agency within 28 days of the end of the reporting period.

4.1.3 The Operator shall submit to the Agency a report on the performance of the Permitted Installation over the previous year, by 31 January each year, providing the information listed in Tables S4.1 and S4.2 of Schedule 4, assessed at any frequency specified therein, and using the form specified in Table S3 to Schedule 3.

4.1.4 The Operator shall review fugitive emissions, having regard to the application of Best Available Techniques, on an annual basis, or such other period as shall be agreed in writing by the Agency, and a summary report on this review shall be sent to the Agency detailing such releases and the measures taken to reduce them within 3 months of the end of such period.

4.1.5 Where the Operator has a formal environmental management system applying to the Permitted Installation which encompasses annual improvement targets the Operator shall, not later than 31 January in each year, provide a summary report of the previous year's progress against such targets.

4.1.6 The Operator shall, within 6 months of receipt of written notice from the Agency, submit to the Agency a report assessing whether all appropriate preventive measures continue to be taken against pollution, in particular through the application of the best available techniques, at the installation. The report shall consider any relevant published technical guidance current at the time of the notice which is either supplied with or referred to in the notice, and shall assess the costs and benefits of applying techniques described in that guidance, or otherwise identified by the Operator, that may provide environmental improvement.

5 Notifications

5.1.1 The Operator shall notify the Agency **without delay** of:-

5.1.1.1 the detection of an emission of any substance which exceeds any limit or criterion in this Permit specified in relation to the substance;

5.1.1.2 the detection of any fugitive emission which has caused, is causing or may cause significant pollution unless the quantity emitted is so trivial that it would be incapable of causing significant pollution;

5.1.1.3 the detection of any malfunction, breakdown or failure of plant or techniques which has caused, is causing or has the potential to cause significant pollution; and

5..1.1.4 any accident which has caused, is causing or has the potential to cause significant pollution.

5.1.2 The Operator shall submit written confirmation to the Agency of any notification under condition 5.1.1, by sending:-

5.1.2.1 the information listed in Part A of Schedule 1 to this Permit within 24 hours of such notification; and

5.1.2.2 the more detailed information listed in Part B of that Schedule as soon as practicable thereafter;

and such information shall be in accordance with that Schedule.

5.1.3 The Operator shall give written notification as soon as practicable prior to any of the following:-

5.1.3.1 permanent cessation of the operation of part or all of the Permitted Installation;

5.1.3.2 cessation of operation of part or all of the Permitted Installation for a period likely to exceed 1 year; and

5.1.3.3 resumption of the operation of part or all of the Permitted Installation after a cessation notified under condition 5.1.3.2.

5.1.4 The Operator shall notify the Agency, as soon as reasonably practicable, of any information concerning the state of the Site which adds to that provided to the Agency as part of the Application.

5.1.5 The Operator shall notify the following matters to the Agency in writing within 14 days of their occurrence:-

5.1.5.1 where the Operator is a registered company:-

- any change in the Operator's trading name, registered name or registered office address;
- any change to particulars of the Operator's ultimate holding company (including details of an ultimate holding company where an Operator has become a subsidiary)
- any steps taken with a view to the Operator going into administration, entering into a company voluntary arrangement or being wound up;

5.1.5.2 where the Operator is a corporate body other than a registered company:

- any change in the Operator's name or address;
- any steps taken with a view to the dissolution of the Operator.

5.1.5.3 In any other case: -

- the death of any of the named Operators (where the Operator consists of more than one named individual);

- any change in the Operator's name(s) or address(es);
- any steps taken with a view to the Operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case them being in a partnership, dissolving the partnership;

5.1.6 Where the Operator has entered into a Climate Change Agreement with the Government, the Operator shall notify the Agency within one month of:-

5.1.6.1 a decision by the Secretary of State not to re-certify that Agreement.

5.1.6.2 a decision by either the Operator or the Secretary of State to terminate that agreement.

5.1.6.3 any subsequent decision by the Secretary of State to re-certify such an Agreement.

5.1.7 Where the Operator has entered into a Direct Participant Agreement in the Emissions Trading Scheme which covers emissions relating to the energy consumption of the activities, the Operator shall notify the Agency within one month of:-

5.1.7.1 a decision by the Operator to withdraw from or the Secretary of State to terminate that agreement.

5.1.7.2 a failure to comply with an annual target under that Agreement at the end of the trading compliance period.

5.1.8 The Operator shall notify the Agency in writing of any known or planned introduction or material change in respect to emissions from the permitted installation to water that may increase or introduce into the effluent any "dangerous substance" as defined in List I and List II of the Dangerous Substances Directive 76/464/EEC and its daughter directives.

6 Interpretation

6.1.1 In this Permit, the following expressions shall have the following meanings:-

"Application" means the application for this Permit, the additional information provided on 10/2/04, together with any response to a notice served under Schedule 4 to the PPC Regulations and any operational change agreed under the conditions of this Permit.

"background concentration" means such concentration of that substance as is present in:

- water supplied to the site; or
- where more than 50% of the water used at the site is directly abstracted from ground or surface water on site, the abstracted water; or
- where the Permitted Installation uses no significant amount of supplied or abstracted water, the precipitation on to the site.

"BAT" means best available techniques means the most effective and advanced stage of development of activities and their methods of operation which indicates the practical suitability of particular techniques to prevent and where that is not practicable to reduce emissions and the impact on the environment as a whole. For these 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"; "best" means "in relation to techniques, the most effective in achieving a high general level of protection of the environment as a whole" and "techniques" "includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned." . In addition, Schedule 2 of the PPC Regulations has effect in relation to the determination of BAT.

"Fugitive emission" means an emission to air or water (including sewer) from the Permitted Installation which is not controlled by an emission or background concentration limit under conditions 2.2.1.3, 2.2.2.4, 2.2.2.5, 2.2.2.8 or 2.2.2.9 of this Permit.

"Groundwater" means all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"Land Protection Guidance" means the version of the Agency guidance note "H7 - *Guidance on the Protection of Land under the PPC Regime: Application Site Report and Site Protection and Monitoring Programme",* including its appended templates for data reporting, which is current at the time of issue of the Permit.

"$L_{Aeq,T}$" means the equivalent continuous A-weighted sound pressure level in dB determined over time period, T.

"$L_{A90,T}$" means the A-weighted sound pressure level in dB exceeded for 90% of the time period, T.

"L_{AFmax}" means the maximum A weighted sound level measurement in dB measured with a fast time weighting.

"MCERTS" means the Environment Agency's Monitoring Certification Scheme.

"Monitoring" includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, tests and surveys.

"Permitted Installation" means the activities and the limits to those activities described in Table 1.1.1 of this Permit.

"PPC Regulations" means the Pollution, Prevention and Control (England and Wales) Regulations SI 2000 No.1973 (as amended) and words and expressions defined in the PPC Regulations shall have the same meanings when used in this Permit save to the extent they are specifically defined in this Permit.

"Sewer" means sewer within the meaning of section 219(1) of the Water Industry Act 1991.

"Staff" includes employees, directors or other officers of the Operator, and any other person under the Operator's direct or indirect control, including contractors.

"Year" means calendar year ending 31 December.

6.1.2 Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

6.1.3 Unless otherwise stated, any references in this Permit to concentrations of substances in emissions into air means:-

6.1.3.1 in relation to gases from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or

6.1.3.2 in relation to gases from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

6.1.4 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 wording of the document(s) with the most recent date shall prevail to the extent of such conflict.

Schedule 1 - Notification of abnormal emissions

This page outlines the information that the Operator must provide to satisfy conditions 5.1.1 and 5.1.2 of this Permit.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the PPC Regulations.

Part A

Permit Number	
Name of Operator	
Location of Installation	
Location of the emission	
Time and date of the emission	

Substance(s) emitted	Media	Best estimate of the quantity or the rate of emission	Time during which the emission took place

Measures taken, or intended to be taken, to stop the emission	

Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment or harm which has been or may be caused by the emission	
The dates of any unauthorised emissions from the installation in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of Albemarle UK Ltd

Schedule 2 - Reporting of monitoring data

Parameters for which reports shall be made, in accordance with conditions 4.1.2 and 4.1.3 of this Permit, are listed below.

Table S2: Reporting of monitoring data

Parameter	Emission point	Reporting period	Period begins	Notes (if relevant)
Class A VOC, individual	A1	Twice in 2004, then annually	26/4/04	Report any relevant Class A VOC species, if any, released at time of testing
Class B VOC, total, expressed as carbon	A1	Twice in 2004, then annually	26/4/04	
Total amines, expressed as dimethlyamine	A1	Twice in 2004, then annually	26/4/04	
Total organic sulphides and mercaptans, expressed as hydrogen sulphide	A1	Twice in 2004, then annually	26/4/04	
Benzene	A1	Once during each Thermex recovery campaign in 2004, then annually	26/4/04	
Sulphur dioxide	A4	Annually	26/4/04	
Oxides of nitrogen, expressed as nitrogen dioxide	A4	Annually	26/4/04	
COD	W1	Quarterly	26/4/04	
Suspended solids	W1	Quarterly	26/4/04	
pH	W1	Quarterly	26/4/04	
Waste disposal/recovery	Installation	Annually	26/4/04	Waste outputs stated for each description in the Application section 2.6, eg bulk high COD waste water, DEO waste water, etc
Water usage	Installation	Annually	26/4/04	
Energy usage	Installation	Annually	26/4/04	
Performance Indicators	Installation	Annually	26/4/04	

Schedule 3 - Forms to be used

Table S3: Reporting Forms		
Media / parameter	**Form Number**	**Date of Form**
Air	A1	7/4/04
Water	W1	7/4/04
Waste Return	R1	7/4/04
Energy	E1	7/4/04
Water usage	WU1	7/4/04
Performance Indicators	PI1	7/4/04

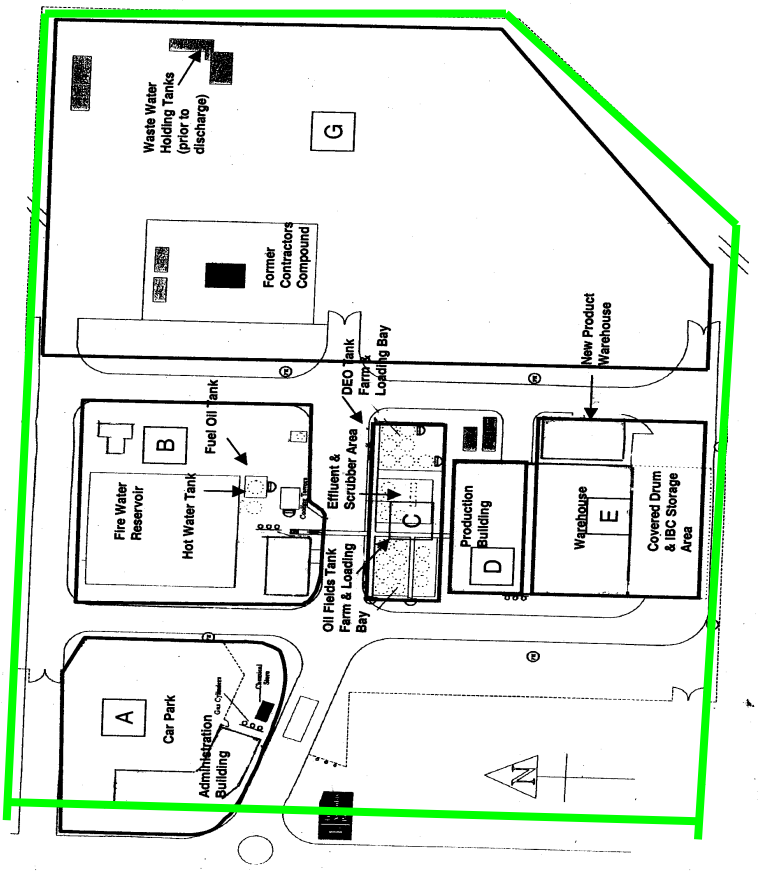
Schedule 4 - Reporting of performance data

Data required to be recorded and reported by Condition 4.1.3. The data should be assessed at the frequency given and reported annually to the Agency.

Table S4.1: Annual Production/Treatment	
Total Production of Organic Chemicals	Tonnes
Total Recovered Thermal Fluids	Tonnes

Table S4.2: Performance parameters			
Parameter		**Frequency of assessment**	**Performance indicator**
VOC released to air per tonne organic chemical product and recovered thermal fluids		Annual	Tonnes/tonne
COD total in waste and released to water per tonne organic chemical product and recovered thermal fluids		Annual	Tonnes/tonne
Water use		Annual	m^3/tonne
Energy use and carbon dioxide equivalent		Annual	MWh/tonne and Tonnes CO_2/tonne

Schedule 5 - Site Plan



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