



**ENVIRONMENT
AGENCY**

Permit with introductory note

Pollution Prevention and Control (England & Wales) Regulations 2000

Barry Silicon-Based Manufacturing
Installation
Dow Corning Limited
Cardiff Road
Barry
Vale of Glamorgan
CF63 2YL

Permit number

BR9685IX

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Introductory note

This introductory note does not form a part of the Permit

The following Permit is issued under Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I.2000 No.1973), as amended, ("the PPC Regulations") to operate part of an installation carrying out activities covered by the description in Section 4.2 A(1)(a)(v) in Part 1 to Schedule 1 of the PPC Regulations, to the extent authorised by the Permit:

Section 1.2 A(1)(b) - Reforming natural gas.

Section 3.1 B(c) - Lime slaking.

Section 4.1 A(1)(a)(vi) - Producing organic chemicals such as organic compounds containing halogens, such as halocarbons, halogenated aromatic compounds and acid halides.

Section 4.2 A(1)(a)(iv) - Producing inorganic chemicals such as salts, such as ammonium chloride, potassium chlorate, potassium carbonate, sodium carbonate, perborate, silver nitrate, cupric acetate, ammonium phosphomolybdate.

Section 4.2 A(1)(a)(v) - Producing inorganic chemicals such as non-metals, metal oxides, metal carbonyls or other inorganic compounds such as calcium carbide, silicon, silicon carbide, titanium dioxide.

Section 4.7 A(1)(b) - Any activity for the manufacture of a chemical which involves the use of ammonia or may result in the release of ammonia into the air other than an activity in which ammonia is only used as a refrigerant.

Section 5.1 A(1)(f) - Incineration other than incidentally in the course of burning solid or liquid waste, of any gaseous compounds containing halogens in a plant that is not an incinerator or co-incinerator.

Section 5.3 A(1)(c)(i) - any on site effluent treatment plant discharging more than 300m³ in any one day.

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 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 installation consists of four sites that are linked technically. These are operated by Dow Corning Ltd., Npower Cogen Ltd., Vopak Terminal Windmill Ltd. and Cabot Carbon Ltd. This permit relates to the Dow Corning site. The primary function of the Dow Corning site is the manufacture of silicones and silicone intermediates. Silicones are extremely versatile materials that can be manufactured in the form of fluids or elastomeric products for uses that include lubrication, sealing, bonding, releasing, defoaming and other varied industrial applications.

The site incorporates a large number of chemical processes that are highly integrated. The main process stages are described below. Silicon metal is ground to a fine powder and fed to fluidised bed reactors where it is reacted with chloromethane to produce a mixture of chlorosilanes. These are then separated into individual monomers by distillation and either used further on site, shipped to other sites for further processing, or, sold. If necessary the mix of chlorosilanes monomers can be adjusted to meet specific requirements in a dedicated rearranger plant. Two of the separated monomers, dimethyldichlorosilane and methylchlorosilane are hydrolysed to produce polydimethylsiloxane and methylhydrogen cyclic siloxanes respectively. These are either further processed on site or shipped off site. Hydrogen chloride, produced as a by-product from the hydrolysis reaction and also returned from the adjacent Cabot Carbon site, is used as a feedstock, together with methanol, for the chloromethane production process.

A mixture of trichlorosilane and silicon tetrachloride is produced from silicon powder and recovered anhydrous hydrochloric acid. This is blended with methyltrichlorosilane before being piped to Cabot Carbon for use in their fumed silica production process. Cabot Carbon also receive a hydrogen supply from Dow Corning. This is produced as a byproduct of the trichlorosilane/silicon tetrachloride process. Dow Corning also receive fumed silica from Cabot Carbon for use as a principle ingredient in the manufacture of silicone rubber.

A variety of individual processes are used for the manufacture of a range of specialist products from the produced intermediate materials. These include processes for the manufacture of silicone gums and elastomeric products, siloxane fluids, speciality silicone based polymers, siloxanes and silanes. In addition a small multipurpose development plant is used for the development of new silicone based products.

The site is served by dedicated utility plants that provides steam, nitrogen, process water, compressed air and hot oil (for heating the process plant). In addition a natural gas steam reforming plant provides hydrogen. A dedicated combined heat and power plant (CHP) operated by Npower Cogen on an adjacent site provides electrical power and additional steam. The adjacent Vopak Terminal Windmill site provides bulk storage facilities for feedstock materials and product intermediates.

The process vents from the fluidised bed reactors and chloromethane plant are abated using compression and water/cryogenic condensation with the residual vent being sent to the energy recovery unit (ERU) which destroys the organic species and produces steam for the site. Vents containing silanes and chlorosilanes are abated using absorption units, a dedicated recovery unit and condensation, prior to final abatement in the ERU. Liquid process effluents are treated in the site waste water treatment facility. Effluent streams from Cabot Carbon and Npower Cogen are also processed by this plant. The treatment process includes a primary water treatment stage that neutralises acidic materials and precipitates out dissolved metals, and a secondary biological treatment process to remove organic species. Final discharge is to the River Cadovton.

Spent sulphuric acid from the chloromethane process is currently sent off site for recovery. The Operator has a waste management centre where all wastes are segregated according to hazard in preparation for shipment off site for recycling or disposal. The centre also has a Waste Management Licence.

Two SSSI's are within 2km of the site, these are Cog Moors and Hayes Point to Bendrick Rock. Five other SSSI's and a single Natura 2000 site, the Severn Estuary Ramsar, are within 10km of the site. Other local receptors include residential housing within 50m of the north-east site boundary.

The Operator's Environmental Management System is accredited to ISO14001 and there is a Climate Change Levy Agreement in place.

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
Cabot Carbon Ltd.	BU2110IS	31/03/06
Npower Cogen Ltd.	BX4135IJ	Subsequent to this permit
Vopak Terminal Windmill Ltd.	KP3734SH	01/06/06

Superseded Licences/Authorisations/Consents relating to this installation		
Holder	Reference Number	Date of issue
Dow Corning Ltd.	IPC authorisation AL8584	01/06/94
Dow Corning Ltd.	IPC authorisation AM4533	01/06/94
Dow Corning Ltd.	IPC authorisation AM4541	01/06/94
Dow Corning Ltd.	IPC authorisation AM4525	31/05/94
Dow Corning Ltd.	IPC authorisation BG1454	26/07/99

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.

Other existing Licences/Authorisations/Registrations relating to this site		
Holder	Reference Number	Date of issue
Dow Corning Ltd.	WML 38(30043)	13/04/91
Dow Corning Ltd.	EA/02/BU7421	01/05/03
Dow Corning Ltd.	EAWML 30376	29/12/05

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	Response Date
Application BR9685IX	Received 17/08/05	
Response to request for information	Requests dated: 30/09/05, 07/10/05, 21/10/05, 25/10/05, 03/11/05, 09/11/05 20/02/06, 21/02/06	Responses dated: 03/11/05, 12/10/05, 25/10/05, 17/11/05, 08/11/05 and 15/11/05, 17/11/05 Summary response 24/01/06 21/02/06, 21/02/06
Request to extend determination	Request dated 14/12/05	Request accepted 09/01/06
Permit determined	06/06/06	

End of Introductory Note.

Permit
Pollution Prevention and Control
Regulations 2000



**ENVIRONMENT
AGENCY**

Permit

Permit number
BR9685IX

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 **Dow Corning Ltd.** ("the Operator"),

Of/ whose Registered Office (or principal place of business) is
Dow Corning Ltd.
Cardiff Road
Barry
Vale of Glamorgan
CF63 2YL

Company registration number 486170

to operate part of an Installation(s) at
Barry Silicon Based Manufacturing Installation
Dow Corning Ltd.
Cardiff Road
Barry
Vale of Glamorgan
CF63 2YL

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

Signed	Date
	6/6/06

Scott McFarlane

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 activities 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 1.2 A(1)(b) - Reforming natural gas.	Natural gas steam reformer for hydrogen production.	Receipt of fuel to production and storage of hydrogen, associated cooling system and emission of combustion gases.
Section 3.1 B(c) - lime slaking.	W806 and W1206 lime slakers.	Receipt of raw materials and storage, production of slaked lime, storage, associated emissions.
Section 4.1 A(1)(a)(vi) - Producing organic chemicals such as organic compounds containing halogens, such as halocarbons, halogenated aromatic compounds and acid halides.	W931 and W718 methyl chloride plant.	Receipt and storage of reactants, chemical processing and associated abatement plant, product storage, associated emissions.
Section 4.2 A(1)(a)(iv) - Producing inorganic chemicals such as salts, such as ammonium chloride, potassium chlorate, potassium carbonate, sodium carbonate, perborate, silver nitrate, cupric acetate, ammonium phosphomolybdate.	W307/8 phosphonitride chloride process.	Receipt and storage of reactants, chemical processing and associated abatement plant, product storage, associated emissions.
Section 4.2 A(1)(a)(v) - Producing inorganic chemicals such as non-metals, metal oxides, metal carbonyls or other inorganic compounds such as calcium carbide, silicon, silicon carbide, titanium dioxide.	W343 rearranger unit, W813 chlorocarbon reactor, W930/W714 fluidised bed reactors, W348 TCS/STC process, W930 DPR hydrogenolysis, W922 methylhydrogen cyclics, W410 continuous hydrolysis unit, W410/W407 vinyl polymer processes, W705/W716/W920 hydrolysis, W306/W406 silicone fluids plant, W309 silicone fluid process, W410 acetoxysilane process, W115 gum rig process, W422 polymerisation reactor process, W410 release modifier process and paper coating blenders, W410 amino polymer process, W307/W308 pilot plant, W115 catalyst unit.	Receipt and storage of reactants, chemical processing and associated abatement plant, product storage, associated emissions.
Section 4.7 A(1)(b) - Any activity for the manufacture of a chemical which involves the use of ammonia or may result in the release of ammonia into the air other than an activity in which ammonia is only used as a refrigerant.	W115 mixing plant.	Receipt and storage of reactants, chemical processing and abatement plant, product storage, associated emissions.
Section 5.1 A(1)(i) - Incineration other than incidentally in the course of burning solid or liquid waste, of any gaseous compounds containing halogens in a plant that is not an incinerator or co-incinerator.	W949 Energy Recovery Unit.	Receipt of waste gases, combustion, abatement plant, associated emissions.

Section 5.3 A(1)(c)(i) – any on site effluent treatment plant discharging more than 300m³ in any one day.	W806 effluent treatment process.	Receipt, storage and treatment of process effluent and contaminated surface water, discharge to River Cadouxton.
Directly associated activity	W424/W940 silicon grinders.	Receipt of raw materials, grinding, associated abatement and emissions.
Directly associated activity	W948/W420/W322 hot oil heaters <20MW thermal input.	Production of hot oil for site and emission of combustion gases.
Directly associated activity	W404, W406, W408, W414, W708, W801, W802, W810 tank farms	Storage of raw materials, intermediates and products, associated emissions.
Directly associated activity	W339, W715, W911 cooling towers	Site cooling towers and associated emissions.
Directly associated activity	W413 storm water collection sump and W411 river water filtration unit.	Uncontaminated storm water run off from site and discharge to River Cadouxton.
Directly associated activity	W1205 and W1206 quench process, W805 Medusa process.	Receipt of material for quenching/encapsulation, treatment, product storage and associated emissions.
Directly associated activity	W946 chlorosilane recovery unit.	Receipt of silanes, treatment with HCl, despatch of chlorosilanes and associated emissions.
Directly associated activity	W709 absorber and fridge.	Absorption of chlorosilanes.
Directly associated activity	W945 basics refrigeration unit.	Refrigeration capacity for W930 and W941.
Directly associated activity	W707, W717, W941 distillation processes.	Receipt of crude feedstock, distillation and despatch of refined product.

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, which is within the area edged in red on the Site Plan that represents the extent of the installation covered by this Permit and those of other Operators of the installation.

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	The Operator shall characterise ammonia releases from A89 over the full duration of the batch based process using Environment Agency Technical Guidance Note M2 'Monitoring of stack emissions to air', compliant methodology. An emission factor for ammonia shall be proposed that is appropriate for the calculation of the annual release inventory. A report shall be provided to the Agency.	01/08/06
IP2	The Operator shall install and commission an enclosed Direct Process Residue quenching process that will enable optional venting to the ERU if trials confirm this is viable. Following commissioning a report shall be provided to the Agency that describes the process and its performance.	01/03/07
IP3	The Operator shall: a) undertake a comparison of the environmental risk assessments for silane and methylsilanes to determine the environmental significance of methylsilane releases to air; b) where methylsilane releases are confirmed as environmentally significant on the basis of a) air dispersion modelling shall be carried out to assess the potential ground level concentration of methylsilanes at local receptors; c) if exceedances of the appropriate EAL are predicted from air dispersion modelling, strategies shall be proposed to reduce the releases of methylsilanes to appropriate levels. A report shall be submitted to the Agency in respect of the completed items and where necessary, an agreed, timetable for the installation of any necessary abatement, an appropriate ELV for methyl silanes and monitoring methodology.	01/04/07
IP4	The Operator shall characterise the releases from A60 and A68. An appropriate abatement strategy, to be agreed with the Environment Agency shall be proposed and implemented. A report shall be submitted to the Agency that includes an agreed timetable for completion of the work.	01/05/07
IP5	The Operator shall implement a planned inspection procedure for all surfacing to minimise the risk of fugitive ground pollution. This shall define inspection frequencies and the procedures to be followed in the event of improvements being identified. A copy of the procedure shall be provided to the Agency.	01/12/06
IP6	The Operator shall undertake a noise survey to determine background noise levels during plant shutdown and ambient noise levels during normal operation at day and night. The survey shall satisfy the requirements of the Environment Agency's Horizontal Guidance Note IPPC H3 and BS4142:1997. The scope of the survey and measurement locations shall be agreed with the Agency beforehand. A report that details the findings, any necessary improvements and an agreed timetable to meet the Inorganic Chemicals Sector Guidance Note IPPC S4.03 standards, shall be submitted to the Agency.	01/12/07
IP7	The Operator shall identify all potential causes for the non-availability of the Energy Recovery Unit (ERU). This shall include planned and unplanned outages. Appropriate procedures shall be established to ensure that ERU availability is maximised through effective maintenance planning, breakdown avoidance and rapid response to breakdowns. A report that details the procedures shall be submitted to the Agency.	01/01/07
IP8	The Operator shall demonstrate to the Agency that the Danfoss Magflo 3100 continuous flow rate measurement equipment is fit for purpose by comparing the manufacturers stated performance with the performance criteria for equivalent equipment having an MCERTS certificate as given in document 'Continuous water monitoring equipment part 3: Performance Standards for water flow meters version 1, February 2003'. Where this comparison shows that the Danfoss Magflo 3100 does not meet the criteria in the above document, the Operator shall propose a timescale whereby either the Danfoss Magflo 3100 will be able to meet the criteria or for the purchase and installation of suitable replacement equipment. Any timescale shall be approved by the Agency.	01/01/07
IP9	The Operator shall carry out a Direct Toxicity Assessment of the treated effluent discharges from W1. A report shall be submitted to the Agency that details the findings and includes recommendations, approved by the Agency, for any necessary improvements to the effluent discharge.	01/01/07
IP10	The Operator shall demonstrate to the Agency that equipment used for continuous monitoring of pH on W1 and W2, is fit for purpose by comparing the manufacturers stated performance of the equipment with the performance criteria for equivalent equipment having an MCERTS conformance certificate as given in document 'Continuous water monitoring equipment part 2: Performance Standards for on-line analysers, Turbidity and pH meters; ammonia, COD, TOC, dissolved O ₂ , total phosphorus, nitrate and	01/01/07

	total oxidised nitrogen analysis version 1, February 2003'. Where this comparison shows that the equipment does not meet the criteria in the above document, the operator shall propose a timescale whereby either the equipment will be able to meet the criteria or for the purchase and installation of suitable replacement equipment. Any timescales shall be approved by the Agency.	
IP11	The Operator shall demonstrate to the Agency that the composite sampler is fit for purpose by comparing the manufacturers stated performance with the performance criteria for equivalent equipment having an MCERTS certificate as given in document 'Continuous water monitoring equipment part 1: Performance Standards and conformity testing procedures for automatic waste water sampling equipment version 1, February 2003'. Where this comparison shows that the composite sampler does not meet the criteria in the above document, the operator shall propose a timescale whereby either the composite sampler will be able to meet the criteria or for the purchase and installation of suitable replacement equipment. Any timescales shall be approved by the Agency.	01/01/07
IP12	The Operator shall develop and implement a risk based inspection programme for the chemical sewers. A report shall be submitted to the Agency that details the programme including the inspection frequency and inspection methodology.	01/04/07
IP13	The Operator shall assess the feasibility of eliminating or substituting the use of cyclohexane in process W115 and substituting the use of toluene used for solvent cleaning with by-product xylene. Identified improvements shall be implemented and a report submitted to the Agency.	01/05/07
IP14	The Operator shall complete a BAT assessment on siloxane abatement options for vents A26, A27, A65, A68, A79, A85. The assessment shall include sampling and analysis to determine representative annual release levels, the identification of options for release reductions and cost implications to complete improvements to meet agreed emission limits. An implementation programme for the identified improvements shall be agreed with the Environment Agency. A report shall be submitted to the Environment Agency.	01/05/07
IP15	The Operator shall review the location of all waste patches. Where these are identified as not being on an impermeable surface necessary improvements shall be carried out to meet BAT standards. A report that details the review and necessary improvements shall be provided to the Agency.	01/06/07
IP16	The Operator shall quantify the releases of speciated VOCs from A78 during periods of normal operation. Where an exceedance of the VOC emission benchmark (Class A VOCs of 100g/h, Class B VOCs 2kg/h) is identified the potential for abatement efficiency improvements shall be identified. A report shall be submitted to the Agency that details the releases to air, the proposed improvements, and agreed release limits and timetable for completion of the work.	01/07/07
IP17	The Operator shall submit a written Site Closure Plan to be agreed with the Agency. The Plan shall have regard to the requirements set out in Section 2.11 of the Inorganic Chemicals Sector Guidance Note IPPC S4.03.	01/09/07
IP18	The Operator shall investigate the feasibility of using an alternative heat transfer fluid in W322 that has an improved thermal stability compared with the existing Santotherm oil, thereby avoiding releases of VOCs from A70 and A71. A timetable for commencement of use of the new fluid shall be agreed with the Environment Agency. A report shall be provided to the Environment Agency that details the characteristics of the alternative fluid and the resultant releases to air.	01/11/07
IP19	The Operator shall devise an appropriate HCl abatement strategy for release point A44. Following installation of appropriate abatement confirmation shall be provided that BAT benchmark levels for HCl (10mg/m ³) are complied with.	01/12/07
IP20	The Operator shall either reposition or provide improved spill protection for the W406 fluids process drum re-work station. A report that details the improvements shall be provided to the Agency.	01/12/07
IP21	All monitoring carried out by site personnel for external reporting purposes shall be undertaken by staff with the appropriate MCERTS accreditation. Written confirmation shall be provided to the Agency.	01/12/07
IP22	The Operator shall install dust abatement equipment on release point A108 to meet the BAT benchmark for dust releases. A report shall be provided to the Agency upon completion of installation that includes details of the performance of the abatement equipment and the planned maintenance regime.	01/01/08
IP23	The Operator shall upgrade the abatement system for release point A42 to provide a self cleaning filter to at least the standard of those used on the other particulate vent abatement techniques on site. Written confirmation shall be provided to the Agency upon completion of the work.	01/01/08

IP24	The Operator shall provide written confirmation that the discharge to the River Cadoxton from the effluent treatment plant at W1 is able to comply with an ELV for copper of 0.1mg/l (daily composite).	01/04/08
IP25	The Operator shall assess the outcome of Environmental Risk Assessments on siloxanes and identify the impact of these assessments upon the operation of the site. Where necessary consideration shall be given to; - the need for detailed characterisation and quantification of siloxane releases to air from specified release points and fugitive releases, - the requirement for improved abatement of such releases, - dispersion modelling, - timescales for the implementation of necessary improvements. Any proposals for improvements shall be approved by the Agency and a report submitted.	01/05/08
IP26	The Operator shall submit to the Agency proposals for the improvement of the bulk basics plant waste storage area such that it meets the BAT standards for storage and containment. A report that details the proposed improvements and an agreed timetable for their implementation shall be provided to the Agency.	01/12/08
IP27	The Operator shall replace the existing lagoon (W804 E-pond) with a BAT compliant bunded tank suitable for the storage of untreated effluent. During decommissioning of the existing E-pond validation samples shall be taken and the results included in the SPMP.	01/01/09
IP28	The Operator shall provide a report to the Agency that describes the proposed 'Medusa' process. This shall include a description of the process, the environmental benefits, the proposed use or disposal route for the produced materials, predicted releases to air from release points A109, A110 and any proposed other associated release points, and the proposed abatement for these release points. A plan shall also be proposed for the monitoring of the process performance and characterisation of releases to air during the first six months of operation. This shall be agreed with the Agency.	Four months prior to commissioning Medusa process

- 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 (and the Site Protection and Monitoring Programme, as the case may be) 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 section B2.1, B2.2 and Appendix 4 and 7 of the application.	17/08/05
Further information	Two new separation processes.	24/01/06

- 2.1.2 The Permitted Installation shall, subject to the other conditions of this Permit, be operated using the techniques and in the manner described in the Site Protection and Monitoring Programme submitted under condition 4.1.7 of this Permit (as amended from time to time under condition 4.1.7), or as otherwise agreed in writing by the Agency.

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 sources specified in that Table.

Table 2.2.1 : Emission points to air

Emission point reference or description	Source	Location of emission point
A1	W424 Grinding Plant bag filter vent	Point A1 on site plan B2.2.2 in Application
A2	W424 Grinding Plant bag filter vent	Point A2 on site plan B2.2.2 in Application
A3	W424 Grinding Plant bag filter vent	Point A3 on site plan B2.2.2 in Application
A4	W940 Grinding Plant bag filter vent	Point A4 on site plan B2.2.2 in Application
A5	W940 Grinding Plant bag filter vent	Point A5 on site plan B2.2.2 in Application
A6	W940 Grinding Plant bag filter vent	Point A6 on site plan B2.2.2 in Application
A7	W940 Grinding Plant bag filter vent	Point A7 on site plan B2.2.2 in Application
A8	W714 Fluidised Bed Reactor bag filter vent, located on W709	Point A8 on site plan B2.2.2 in Application
A9	W714 Fluidised Bed Reactor bag filter vent, located on W709	Point A9 on site plan B2.2.2 in Application
A10	W714 Fluidised Bed Reactor bag filter vent	Point A10 on site plan B2.2.2 in Application
A11	W714 Fluidised Bed Reactor bag filter vent	Point A11 on site plan B2.2.2 in Application
A12	W714 Fluidised Bed Reactor vent via condenser	Point A12 on site plan B2.2.2 in Application
A13	W930 Fluidised Bed Reactor catalyst filter vent	Point A13 on site plan B2.2.2 in Application
A14	W930 Fluidised Bed Reactor bag filter vent	Point A14 on site plan B2.2.2 in Application
A15	W930 Fluidised Bed Reactor bag filter vent	Point A15 on site plan B2.2.2 in Application
A16	W930 Fluidised Bed Reactor bag filter vent	Point A16 on site plan B2.2.2 in Application
A17	W930 Fluidised Bed Reactor bag filter vent	Point A17 on site plan B2.2.2 in Application
A18	W930 Fluidised Bed Reactor bag filter vent	Point A18 on site plan B2.2.2 in Application
A19	W705 Hydrolysis Plant vent via condenser	Point A19 on site plan B2.2.2 in Application
A20	W716 Hydrolysis Plant vent via condenser	Point A20 on site plan B2.2.2 in Application
A21	W705 Hydrolysis Plant vent via absorber	Point A21 on site plan B2.2.2 in Application
A22	W716 Hydrolysis Plant vent via absorber	Point A22 on site plan B2.2.2 in Application
A23	W705 Hydrolysis Plant vent via scrubber	Point A23 on site plan B2.2.2 in Application
A24	W716 Hydrolysis Plant vent via scrubber	Point A24 on site plan B2.2.2 in Application
A25	W705/W716 Hydrolysis Plant vent via scrubber	Point A25 on site plan B2.2.2 in Application
A26	W920 Hydrolysis Plant vent via scrubber	Point A26 on site plan B2.2.2 in Application
A27	W920 Hydrolysis Plant vent via condenser	Point A27 on site plan B2.2.2 in Application
A28	W920 Hydrolysis Plant tanker loading vent	Point A28 on site plan B2.2.2 in Application
A29	W343 Rearranger Plant vent via scrubber	Point A29 on site plan B2.2.2 in Application
A30	W718 Chloromethane Plant sulphuric acid tank vent	Point A30 on site plan B2.2.2 in Application
A31	W802 Tank Farm tank vent	Point A31 on site plan B2.2.2 in Application
A32	W802 Tank Farm tank vent	Point A32 on site plan B2.2.2 in Application
A33	W718 Chloromethane Plant vent via condenser and absorber	Point A33 on site plan B2.2.2 in Application
A34	W931 Chloromethane Plant vent via condenser and absorber	Point A34 on site plan B2.2.2 in Application
A35	W1206 Quench Treatment Area bag filter vent	Point A35 on site plan B2.2.2 in Application
A36	W1206 Quench Treatment Area vent via scrubber	Point A36 on site plan B2.2.2 in Application
A37	W1206 Quench Treatment Area vent via scrubber	Point A37 on site plan B2.2.2 in Application
A38	W1205 Quench Treatment Area vent via scrubber	Point A38 on site plan B2.2.2 in Application
A39	W1205 Quench Treatment Area vent via scrubber	Point A39 on site plan B2.2.2 in Application

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A40	W946 Chlorosilane Recovery Unit vent via W806 scrubber	Point A40 on site plan B2.2.2 in Application
A41	W949 Energy Recovery Unit via 30m stack	Point A41 on site plan B2.2.2 in Application
A42	Waste Water Treatment Plant bag filter vent	Point A42 on site plan B2.2.2 in Application
A43	W922 Methylhydrogen Cyclics Process vent via scrubber	Point A43 on site plan B2.2.2 in Application
A44	W922 Methylhydrogen Cyclics Process tank vent	Point A44 on site plan B2.2.2 in Application
A45	W922 Methylhydrogen Cyclics Process tank vent	Point A45 on site plan B2.2.2 in Application
A46	W922 Methylhydrogen Cyclics Process tanker vent	Point A46 on site plan B2.2.2 in Application
A47	W420 Hot Oil Unit vent via 18.3m stack	Point A47 on site plan B2.2.2 in Application
A48	W948 Hot Oil Unit vent via 30m stack	Point A48 on site plan B2.2.2 in Application
A49	W1206 Quench Treatment Area vent via scrubber	Point A49 on site plan B2.2.2 in Application
A50	W957 Hydrogen Plant vent via 19m stack	Point A50 on site plan B2.2.2 in Application
A51	W940 Grinder Plant bag filter vent	Point A51 on site plan B2.2.2 in Application
A52	W920 Hydrolysis vent via scrubber	Point A52 on site plan B2.2.2 in Application
A53	W922 Methylhydrogen Cyclics Process separator vent	Point A53 on site plan B2.2.2 in Application
A54	Not in existence at time of application	Point A54 on site plan B2.2.2 in Application
A55	W348 TCS Process bag filter vent	Point A55 on site plan B2.2.2 in Application
A56	W348 TCS Process bag filter vent	Point A56 on site plan B2.2.2 in Application
A57	W348 TCS Process vent via scrubber	Point A57 on site plan B2.2.2 in Application
A58	W306 Fluids GIC Process vent	Point A58 on site plan B2.2.2 in Application
A59	W306 Fluids HVF Process vent	Point A59 on site plan B2.2.2 in Application
A60	W306 Fluids DC1107 Process vent via condenser	Point A60 on site plan B2.2.2 in Application
A61	W404 Tank Farm vent	Point A61 on site plan B2.2.2 in Application
A62	W404 Tank Farm vent	Point A62 on site plan B2.2.2 in Application
A63	W404 Tank Farm vent	Point A63 on site plan B2.2.2 in Application
A64	W406 Fluids Process vent	Point A64 on site plan B2.2.2 in Application
A65	W406 Fluids Splitter Process vent via condenser	Point A65 on site plan B2.2.2 in Application
A66	W406 Tank Farm vent	Point A66 on site plan B2.2.2 in Application
A67	W406 Tank Farm vent	Point A67 on site plan B2.2.2 in Application
A68	W422 Polymerisation Process vent via condenser	Point A68 on site plan B2.2.2 in Application
A69	W322 Hot Oil Unit vent via 15m stack	Point A69 on site plan B2.2.2 in Application
A70	W322 Hot Oil Unit vent via condenser	Point A70 on site plan B2.2.2 in Application
A71	W322 Hot Oil Unit tank vent	Point A71 on site plan B2.2.2 in Application
A72	W410 Batch Vinyl Polymer Process vent via condenser	Point A72 on site plan B2.2.2 in Application
A73	W410 Batch Vinyl Polymer Process vent via condenser	Point A73 on site plan B2.2.2 in Application
A74	W410 Amino Polymer Process (Textiles) vent via condenser	Point A74 on site plan B2.2.2 in Application
A75	W410 Acetoxysilane/ CHU Process vent via scrubber	Point A75 on site plan B2.2.2 in Application
A76	W410 Acetoxysilane Process bag filter vent	Point A76 on site plan B2.2.2 in Application
A77	W410 Release Modifier Process vent via condenser	Point A77 on site plan B2.2.2 in Application
A78	W410 Release Modifier Process vent via condenser	Point A78 on site plan B2.2.2 in Application
A79	W407 Continuous Vinyl Polymer Process vent via condenser	Point A79 on site plan B2.2.2 in Application
A80	W407 Continuous Vinyl Polymer Process vent via 25m stack	Point A80 on site plan B2.2.2 in Application
A81	W408 Tank Farm vent	Point A81 on site plan B2.2.2 in Application

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A82	W414 Tank Farm vent	Point A82 on site plan B2.2.2 in Application
A83	W414 Tank Farm vent	Point A83 on site plan B2.2.2 in Application
A84	W414 Tank Farm vent	Point A84 on site plan B2.2.2 in Application
A85	W307 Multipurpose/Development Process vent via scrubber	Point A85 on site plan B2.2.2 in Application
A86	W309 Silicone Fluids Process vent	Point A86 on site plan B2.2.2 in Application
A87	W309 Silicone Fluids Process vent	Point A87 on site plan B2.2.2 in Application
A88	W309 Silicone Fluids Process vent	Point A88 on site plan B2.2.2 in Application
A89	W115 Elastomers Mixing Process vent via scrubber	Point A89 on site plan B2.2.2 in Application
A90	W115 Elastomers Mixing Process vent via dust cartridge	Point A90 on site plan B2.2.2 in Application
A91	W115 Elastomers Mixing Process vent via dust cartridge	Point A91 on site plan B2.2.2 in Application
A92	W115 Elastomers Mixing Process vent via dust cartridge	Point A92 on site plan B2.2.2 in Application
A93	W115 Elastomers Catalyst Unit vent	Point A93 on site plan B2.2.2 in Application
A94	W115 Elastomers Gum Unit vent via condenser	Point A94 on site plan B2.2.2 in Application
A95	W115 Elastomers Mixing Plant bag filter vent	Point A95 on site plan B2.2.2 in Application
A96	W115 Elastomers Mixing Plant bag filter vent	Point A96 on site plan B2.2.2 in Application
A97	W115 Elastomers Mixing Plant bag filter vent	Point A97 on site plan B2.2.2 in Application
A98	W115 Elastomers Mixing Plant bag filter vent	Point A98 on site plan B2.2.2 in Application
A99	W115 Elastomers Mixing Plant bag filter vent	Point A99 on site plan B2.2.2 in Application
A100	W115 Elastomers Mixing Plant bag filter vent	Point A100 on site plan B2.2.2 in Application
A101	W115 Elastomers Mixing Plant bag filter vent	Point A101 on site plan B2.2.2 in Application
A102	W115 Elastomers Mixing Plant bag filter vent	Point A102 on site plan B2.2.2 in Application
A103	W115 Elastomers Mixing Plant bag filter vent	Point A103 on site plan B2.2.2 in Application
A104	W115 Elastomers Mixing Plant bag filter vent	Point A104 on site plan B2.2.2 in Application
A105	W115 Elastomers Mixing Plant bag filter vent	Point A105 on site plan B2.2.2 in Application
A106	W115 Elastomers Mixing Plant bag filter vent	Point A106 on site plan B2.2.2 in Application
A107	W115 Elastomers Mixing Plant bag filter vent	Point A107 on site plan B2.2.2 in Application
A108	W410 Amino Polymer Process vent	Point A108 on site plan B2.2.2 in Application
A109	W805 Spent Bed Encapsulation Process vent	Point A109 on site plan B2.2.2 in Application
A110	W805 Spent Bed Encapsulation Process vent	Point A110 on site plan B2.2.2 in 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.

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Table 2.2.2 : Emission limits to air and monitoring

Emission point reference	Parameter	Limit (including Reference Period) ⁽¹⁾	Monitoring frequency	Monitoring method
A12	Chloromethane	1000 kg/day, ⁽²⁾ 250 kg/h ⁽²⁾	Continuous when ERU not available	US EPA Method 18
A27, A85	Siloxanes	An agreed limit ⁽⁴⁾	Quarterly	An agreed methodology ⁽⁶⁾
A26, A65, A68, A79	Siloxanes	An agreed limit ⁽⁴⁾	Quarterly	An agreed methodology ⁽⁶⁾
A33	Chloromethane	1000 kg/day, ⁽²⁾ 250 kg/h ⁽²⁾	Continuous when ERU not available	US EPA Method 18
A33	Methanol	60 kg/h	Continuous when ERU not available	US EPA Method 18
A34	Chloromethane	1000 kg/day, ⁽²⁾ 250 kg/h ⁽²⁾	Continuous when ERU not available	US EPA Method 18
A34	Methanol	60 kg/h	Continuous when ERU not available	US EPA Method 18
A41	Particulates	10 mg/m ³ hourly average	Annually	BS EN 13284-1
A41	Hydrogen chloride	10 mg/m ³ hourly average	Monthly	BS EN 1911:1998
A41	Chlorine	10 mg/m ³ hourly average	Monthly	US EPA Method 26
A41	Carbon monoxide	50 mg/m ³ hourly average	Annually	ISO 12039
A41	Oxides of nitrogen, as NO ₂	100 mg/m ³ hourly average	Annually	ISO 10849
A41	Dioxins and furans	0.1 ng/m ³	Annually	BS EN 1948:1997
A43	Hydrogen chloride	10 mg/m ³ hourly average	Quarterly	BS EN 1911:1998
A44	Hydrogen chloride	10 mg/m ³ ⁽⁶⁾ hourly average	Quarterly	BS EN 1911:1998
A50	Oxides of nitrogen, as NO ₂	200 mg/m ³ hourly average	Annually	ISO 10849
A50	Carbon monoxide	200 mg/m ³ hourly average	Annually	ISO 12039
A57	Hydrogen chloride	10 mg/m ³ hourly average	Quarterly	BS EN 1911:1998
A57	Chloromethane	2 kg/h	During each spent bed transfer to W348	BS EN 13649
A60, A68	Class B VOCs	An agreed limit ⁽⁷⁾	Quarterly	BS EN 13649
A78	Class A VOCs	100 g/h ⁽⁵⁾	Quarterly	BS EN 13649
A85	Hydrogen chloride	10 mg/m ³ ⁽³⁾ hourly average	Annually	BS EN 1911:1998

Note 1: See Section 6 for reference conditions.

Note 2: Limit is cumulative for A12, A33, A34 and A40.

Note 3: During phosphonitrile production.

Note 4: Following completion of the improvements identified and approved by the Environment Agency in response to Improvement Programme 14.

Note 5: Following completion of the improvements identified and approved by the Environment Agency in response to Improvement Programme 16.

Note 6: Following completion of Improvement Programme 19.

Note 7: Following completion of the improvements identified and approved by the Environment Agency in response to Improvement Programme 4.

Note 8: Methodology agreed in writing with the Environment Agency.

2.2.1.4 Total emissions to air from emission point(s) set out in Table 2.2.1 in any year of a substance listed in Table 2.2.3 should not exceed the relevant limit in that Table.

Table 2.2.3 Annual limits

Substance	Limit - kg
Chloromethane	60 000
Total non methane volatile organic compounds ⁽¹⁾	150 000

Note 1: Not including siloxanes or silanes.

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 site plan B2.2.2 in Application	Discharge from effluent treatment plant	River Cadoxton
W2 on site plan B2.2.2 in Application	Untreated discharge from W413 spill pond	River Cadoxton

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.

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Table 2.2.5 : Emission limits to water and monitoring					
Emission reference	point	Parameter	Limit (including Reference Period)	Monitoring frequency	Monitoring method ⁽⁵⁾
W1		Flow	15 000 m ³ /day ⁽³⁾	Continuous	To an agreed relevant EN, BS, or ISO standard
W1		Flow	625 m ³ /hour	Continuous	To an agreed relevant EN, BS, or ISO standard
W1		Temperature	40 °C ⁽¹⁾	Continuous	An agreed method ⁽⁷⁾
W1		pH	≥ 6, ≤ 9	Continuous	No standard method is available ⁽⁴⁾
W1		Suspended solids	30 mg/l ⁽¹⁾ daily composite	Daily	SCA Blue Book 105 ISBN 011751957X
W1		BOD ₅	20 mg/l ⁽²⁾	Monthly	SCA Blue Book 130 ISBN 0117522120
W1		Copper	0.1 mg/l ^{(1), (6)} daily composite	Daily	BS ISO 17294-2:2003 BS 6068-2.89:2003
W1		Zinc	0.5 mg/l ⁽¹⁾ daily composite	Daily	BS ISO 17294-2:2003 BS 6068-2.89:2003
W1		Hydrocarbon oil	No visible sheen	Weekly	An agreed method ⁽⁸⁾
W1		Halogenated organic compounds	1 mg/l ⁽²⁾	Monthly	BS EN ISO 10301:1997 BS 6068-2.58:1997
W2		pH	≥ 6, ≤ 9	Weekly	BS 6068-2.50:1995, ISO 10523:1994
W2		Suspended solids	30 mg/l ⁽²⁾	Weekly	SCA Blue Book 105 ISBN 011751957X
W2		BOD ₅	20 mg/l ⁽²⁾	Monthly	SCA Blue Book 130 ISBN 0117522120
W2		COD	125 mg/l ⁽²⁾	Monthly	BS ISO 15705:2002 BS 6068-2.80:2002
W2		Copper	0.15 mg/l ⁽²⁾	Following each transfer from W809 to W413	BS ISO 17294-2:2003 BS 6068-2.89:2003
W2		Zinc	0.25 mg/l ⁽²⁾	Following each transfer from W809 to W413	BS ISO 17294-2:2003 BS 6068-2.89:2003
W2		Hydrocarbon oil	No visible sheen	Monthly	An agreed method ⁽⁸⁾

Note 1: Not more than 5% of samples shall exceed the emission limit value in the reporting period.

Note 2: No spot sample shall exceed the emission limit value by more than 50%.

Note 3: Maximum volume of effluent discharged during dry weather shall be 11000 m³/day. Dry weather shall be when no rainfall has occurred at the Barry site over preceding 72h.

Note 4: The Operator shall provide a procedure/work instruction that shall be approved by the Agency for the operation of the continuous pH meter having regard to the calibration requirements in BS 6068-2.50:1995, ISO 10523:1994.

Note 5: Or to an EN, BS, ISO or SCA Blue Book standard as agreed in writing with the Agency.

Note 6: 0.2mg/l until completion of IP24.

Note 7: The Operator shall submit a method for temperature monitoring that shall be approved by the Agency.

Note 8: The Operator shall submit a method for the assessment of hydrocarbon oil contamination that shall be approved by the Agency.

2.2.2.6 No condition applies.

Emissions to sewer

2.2.2.7 No emission from the Permitted Installation shall be made to sewer.

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 (S.I. 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.

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.

2.2.5 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.

- 2.2.6.2 No condition applies.

- 2.2.6.3 No condition applies.

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.

- 2.2.7.3 No condition applies.

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
Particulates from release points A1-A11, A13-A18, A29, A35, A38, A39, A42, A49, A51, A55, A56, A76, A90-92, A95-A107, A108 ⁽¹⁾	No visible releases of dust with no evidence of deposition in vicinity of stack discharge.
Smoke from A47, A48, A69	No visible smoke except for the first 15 minutes of start up from cold.

Note 1: Following completion of Improvement Programme 22.

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
 - 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.

- 2.3.8 The Operator shall record and investigate complaints concerning the Permitted Installation's effects or alleged effects on the environment. The record shall give the date and nature of complaint, time of complaint, name of complainant (if given), a summary of any investigation and the results of such investigation and any actions taken.

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 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 the Permitted installation 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.
- 2.5.2 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.

2.6 Waste recovery or disposal

- 2.6.1 Waste produced at the Permitted Installation shall be:
- 2.6.1.1 recovered to no lesser extent than described in the Application; and
- 2.6.1.2 where not recovered, disposed of while avoiding or reducing any impacts on the environment provided always that this is not done in any way that would have a greater effect on the environment than that described in the Application.
- 2.6.2 The Operator shall maintain the waste recovery or disposal table or description submitted in Section 2.6 of the Application and in particular review the available options for waste recovery and disposal for the purposes of complying with condition 2.6.1 above.

- 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.
- 2.6.4 The Operator shall maintain and implement a system which ensures that a record is made of the quantity, composition, origin and delivery date of any waste that is received for disposal or recovery 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 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 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.

2.9.2 No condition applies.

2.9.3 No condition applies.

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 The Operator shall carry out environmental or other specified substance monitoring to the frequencies and methods described in Table 2.10.1

Table 2.10.1 : Other monitoring requirements

Emission point reference or source or description of point of measurement	Substance or parameter	Monitoring frequency	Monitoring method	Other specifications
A12	Methane	Continuous	US EPA Method 18	Only when ERU not available
A12	Non-methane hydrocarbons	Continuous	US EPA Method 18	Only when ERU not available
A26	Class B VOCs	Annually	BS EN 13649	
A40	Silanes	Daily	An agreed methodology ⁽¹⁾	Only when ERU not available for a period greater than 6h in any day
A48	Oxides of nitrogen as NO ₂	Annually	ISO 10849	
A48	CO	Annually	ISO 12039	
ERU	Process availability ⁽²⁾	Continuous	Process monitoring	To be reported to Environment Agency annually

Note 1: Methodology approved in writing with the Environment Agency.

Note 2: Based on the availability to process 100% of W714 FBR vent.

- 2.10.3 The Operator shall carry out monitoring of the process variables listed in Table 2.10.1 to the frequencies and methods described in that Table.
- 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 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme in condition 2.10.1 of this Permit and the environmental or other monitoring specified in condition 2.10.4 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in Table 2.2.2. The CEM shall also be able to measure instantaneous values over the ranges, which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.
- 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.
- 2.10.9 The Operator shall carry out the on-going monitoring identified in the Site Protection and Monitoring Programme submitted under condition 4.1.7, unless otherwise agreed in writing by the Agency.
- 2.10.10 The Operator shall, within 6 months of the issue of this Permit, in accordance with and using the format given in the Land Protection Guidance:
- 2.10.10.1 collect the site reference data identified in the Site Protection and Monitoring Programme submitted under condition 4.1.7, and
 - 2.10.10.2 report that site reference data to the Agency,
 - unless otherwise agreed in writing 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 There are no conditions as a result of the interactions of the Permits covering this 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; and
 - 3.1.7 where they concern the condition of the site of the Installation or are related to the implementation of the Site Protection and Monitoring Programme, be kept at the Permitted Installation, or other location agreed by the Agency in writing, until all parts of the Permit have been surrendered.

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.
- 4.1.7 The Operator shall, within two months of the date of this permit, submit a detailed Site Protection and Monitoring Programme, in accordance with and using the appropriate template format given in the Land Protection Guidance. The Operator shall implement and maintain the Site Protection and Monitoring Programme (SPMP) submitted under this condition, and shall carry out regular reviews of it at a minimum frequency of every 2 years. The results of such reviews and any changes made to the SPMP shall be reported to the Agency within 1 month of the review or change.

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;
- 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 or to that in the Site Protection and Monitoring Programme submitted under condition 4.1.7 of this Permit.

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: -

Notifications

- 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 emission from the permitted Installation to sewer, that may increase the concentration of 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, 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.

"ISO" means International Standards Organisation.

"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.

"*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 the 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 (including waste oil), 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.

Formatted: Bullets and Numbering

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 Dow Corning Limited

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.

Permit and Introductory note: the PPC Regulations 2000 No 1973

Schedule 2 - Reporting of monitoring data

Table S2: Reporting of monitoring data			
Parameter	Emission point	Reporting period	Period begins
Class B VOCs t/yr	A60, A68	Every 3 months	01/07/06
Class B VOCs t/yr	A26	Every 12 months	01/01/06
Class A VOCs g/h	A78	Every 3 months	01/07/06
Oxides of nitrogen mg/m ³	A41, A48, A50	Every 12 months	01/01/06
Hydrogen chloride mg/m ³	A41, A85	Every 12 months	01/01/06
Hydrogen chloride mg/m ³	A43, A44, A57	Every 3 months	01/07/06
Carbon monoxide mg/m ³	A41, A48, A50	Every 12 months	01/01/06
Particulates mg/m ³	A41	Every 12 months	01/01/06
Chloromethane kg/h	A12, A33, A34, A40, A57	Every 12 months	01/01/06
Chloromethane kg/day	A12, A33, A34, A40	Every 12 months	01/01/06
Chloromethane kg/yr	A12, A33, A34, A40	Every 12 months	01/01/06
Methane kg/yr	A12	Every 12 months	01/01/06
Non-methane hydrocarbons kg/yr	A12	Every 12 months	01/01/06
Methanol kg/h	A33, A34	Every 12 months	01/01/06
Silanes mg/m ³	A40	Every 12 months	01/01/06
Silanes kg/yr	A40	Every 12 months	01/01/06
Chlorine mg/m ³	A41	Every 12 months	01/01/06
Dioxins and furans ng/m ³	A41	Every 12 months	01/01/06
Siloxanes kg/h	A27, A85	Every 3 months	01/07/06
Siloxanes t/yr	A26, A65, A68, A79	Every 3 months	01/07/06
Flow m ³ /day	W1	Every 3 months	01/07/06
Flow m ³ /h	W1	Every 3 months	01/07/06
pH	W1, W2	Every 3 months	01/07/06

Permit and Introductory note: the PPC Regulations 2000 No 1973

Schedule 2 - Reporting of monitoring data

Temperature °C	W1	Every 3 months	01/07/06
Suspended solids mg/l	W1, W2	Every 3 months	01/07/06
Biochemical oxygen demand mg/l	W1, W2	Every 3 months	01/07/06
Chemical oxygen demand mg/l	W2	Every 3 months	01/07/06
Copper mg/l	W1, W2	Every 3 months	01/07/06
Zinc mg/l	W1, W2	Every 3 months	01/07/06
Halogenated organic compounds mg/l	W1	Every 3 months	01/07/06
Hydrocarbon oil mg/l	W1, W2	Every 3 months	01/07/06
Energy recovery unit availability	Permitted installation	Every 12 months	01/01/06
Waste disposal and/or recovery	Permitted installation	Every 12 months	01/01/06
Water usage	Permitted installation	Every 12 months	01/01/06
Energy usage	Permitted installation	Every 12 months	01/01/06

Schedule 3 - Forms to be used

Table S3: Reporting Forms		
Media or parameter	Form Number	Date of Form
Air: Annual reporting of emissions	Agency Form / BR9685IX / A1 / Form dated 01/03/06	01/03/06
Air: Quarterly reporting of emissions	Agency Form / BR9685IX / A2 / Form dated 01/03/06	01/03/06
Air: A41 Annual reporting of Hydrogen chloride emissions	Agency Form / BR9685IX / A3 / Form dated 01/03/06	01/03/06
Air: A41 Annual reporting of Chlorine emissions	Agency Form / BR9685IX / A4 / Form dated 01/03/06	01/03/06
Air: A41 Annual reporting of Chloromethane emissions	Agency Form / BR9685IX / A5 / Form dated 01/03/06	01/03/06
Water: Quarterly reporting of emissions to water	Agency Form / BR9685IX / W1 / Form dated 01/03/06	01/03/06
Energy	Agency Form / BR9685IX / E1 / Form dated 01/03/06	01/03/06
Waste Return	Agency Form / BR9685IX / R1 / Form dated 01/03/06	01/03/06
Water usage	Agency Form / BR9685IX / WU1 / Form dated 01/03/06	01/03/06
Performance indicators	Agency Form / BR9685IX / PI1 / Form dated 01/03/06	01/03/06
ERU Availability	Agency Form / BR9685IX / ERU1 / Form dated 01/03/06	01/03/06

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	
Production of polydimethylsiloxane	tonnes

Table S4.2: Performance parameters		
Parameter	Frequency of assessment	Performance indicator
Water use	Annually	m ³ /tonne
Energy use	Annually	KWh/tonne
Carbon dioxide	Annually	tonne/tonne
Waste	Annually	kg/tonne

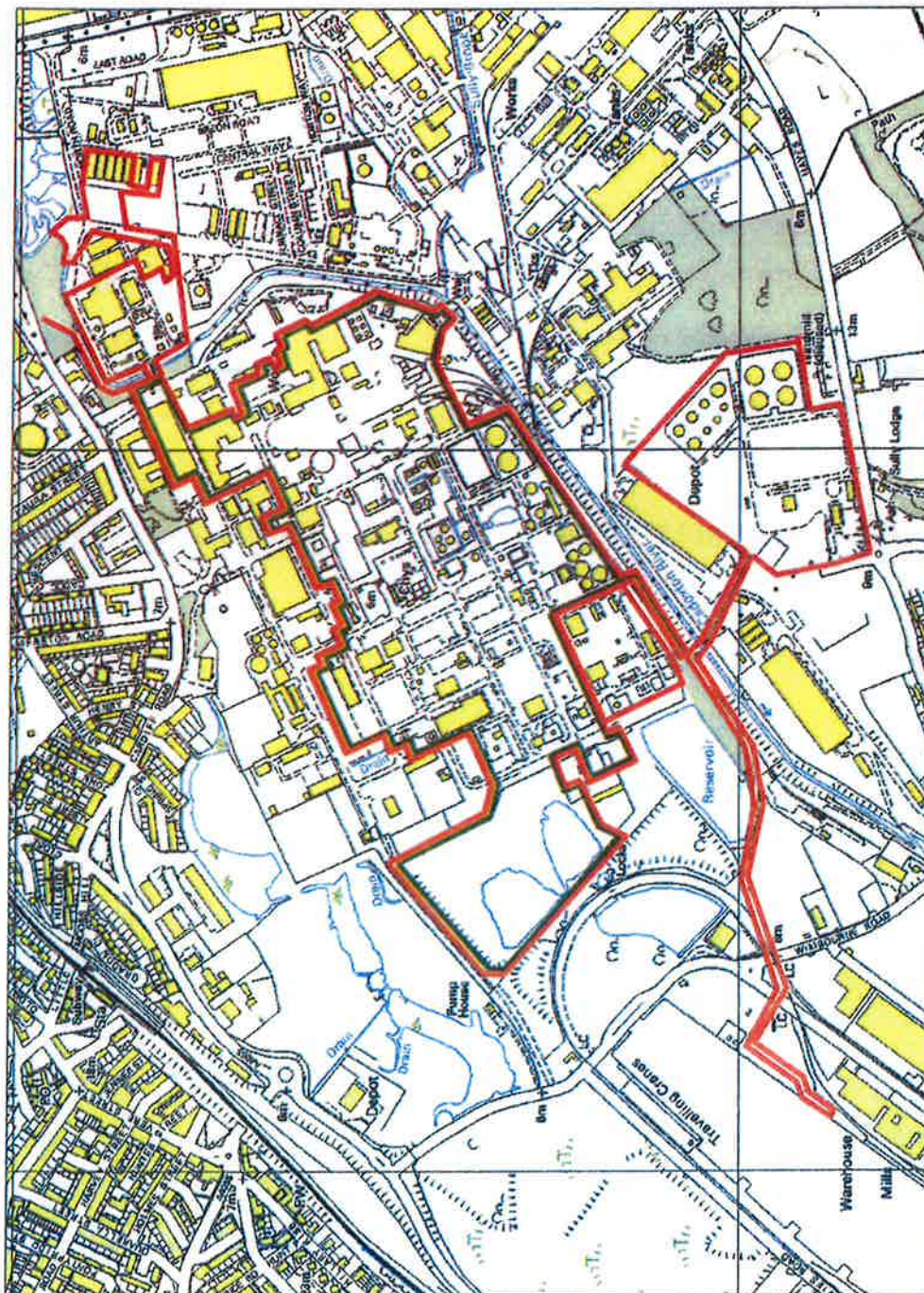
Schedule 5 - Site Plan

The site plan comprises one view as follows:

Figure 1 – Overview of complete installation showing the Dow Corning boundary edged in green and all sites that comprise the installation edged in red.

Figure 1 has been reproduced from the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office ©Crown Copyright 2000. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

Figure 1



END OF PERMIT