



**ENVIRONMENT  
AGENCY**

# Permit with introductory note

Pollution Prevention and Control (England & Wales) Regulations 2000

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Barry Silicon-Based Manufacturing  
Installation  
Cabot Carbon Limited  
Sully Moors Road  
Sully  
Vale of Glamorgan  
CF64 5RP

Permit number

BU2110IS

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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 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 1.2 A(1)(b) – "Reforming natural gas".

Section 5.3 A(1)(c)(ii) – "Disposal of non-hazardous waste in a facility with a capacity of more than 50 tonnes per day by physio-chemical treatment".

Aspects of the operation of the Permitted 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 Permitted Installation.

Techniques include both the technology used and the way in which the Permitted 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 Permitted 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 Permitted Installation is given in the Application, but the main features of the Permitted 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 Cabot Carbon site. Cabot Carbon Limited manufacture fumed amorphous silica (silicon dioxide) by the high temperature hydrolysis of a mixed chlorosilane feedstock, and subsequent recovery of hydrogen chloride together with the treatment of associated by-products. Fumed silica is used in a wide variety of products including cosmetics, coatings, elastomers, pharmaceuticals, food additives and insulation materials. Silica production capacity is 12 000 tonnes per year.

The chlorosilane liquid feedstock is received from Dow Corning via pipeline, vapourised, mixed with air and reacted with hydrogen in a flame. The hydrogen gas is provided by Dow Corning and the site's hydrogen plant where natural gas is reacted with steam inside a furnace reformer. The primary products of the high temperature hydrolysis are fumed silica and hydrogen chloride, though chlorine gas is produced as a by-product. The reaction products are cooled and the residual by-product chlorine gas is converted to hydrogen chloride by reaction with natural gas. Other by-products include carbon monoxide and chloromethanes. Hydrogen chloride is recovered from the gas stream by absorption into the aqueous phase prior to transfer to storage vessels as strong hydrochloric acid, a proportion of which is returned to Dow Corning via pipeline. Additionally, anhydrous hydrogen chloride gas is desorbed from strong hydrochloric acid and returned to Dow Corning via pipeline.

A second processing activity involves production of treated silica. This involves treatment of silica with polydimethylsiloxane in a batch based process.

The main releases to air from these processes are carbon monoxide that originates from the chlorine abatement process, hydrochloric acid and small quantities of chlorine and chloromethanes. All process water is either discharged to sewer or to the Dow Corning effluent treatment plant. Direct discharges to the River Cadoxton are only surface water runoff.

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-west site boundary.

The Environmental Management System is accredited to ISO14001 and the site operates a Quality Management System that is certified to ISO9001:2000. There is also 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**

<b>Permit holder</b>	<b>Permit Number</b>	<b>Date of Issue</b>
Dow Corning Ltd	BR9685IX	Subsequent to this permit
Npower Cogen Ltd.	BX4135IJ	Subsequent to this permit
Vopak Terminal Windmill Ltd.	KP3734SH	Subsequent to this permit

**Superseded Licences/Authorisations/Consents relating to this installation**

<b>Holder</b>	<b>Reference Number</b>	<b>Date of Issue</b>
Cabot Carbon Ltd	AL8959	31/05/94

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**

<b>Holder</b>	<b>Reference Number</b>	<b>Date of issue</b>
None		

## 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 permitted 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 BU2110IS	Received 17/08/05	
Response to request for information	Requests dated: 09/09/05, 22/09/05, 12/01/06, 16/01/06, 19/01/06, 10/03/06	Responses dated: 14/10/05, 26/10/05, 18/11/05, 23/11/05, 12/12/05, 19/12/05, 13/01/06, 09/02/06, 16/03/06
Request to extend determination	Request dated 14/12/05	Request accepted 19/12/05
Permit determined	Determined 31/03/06	

**End of Introductory Note.**

**Permit**  
Pollution Prevention and Control  
Regulations 2000



**ENVIRONMENT  
AGENCY**

## Permit

Permit number  
**BU2110IS**

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 **Cabot Carbon Ltd** ("the Operator"),

Of/ whose Registered Office (or principal place of business) is  
**Cabot Carbon Ltd**  
**Lees Lane**  
**Stanlow**  
**Ellesmere Port**  
**South Wirral**  
**L65 4HT**

Company registration number 462857

to operate part of an Installation(s) at  
**Barry Silicon Based Manufacturing Installation**  
**Cabot Carbon Ltd**  
**Sully Moors Road**  
**Sully**  
**Vale of Glamorgan**  
**CF64 5RP**

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

Signed	Date
	31/3/06

S 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 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.	'A' train chlorosilane burner and associated plant.	This definition covers the entire fumed silica production plant, including but not limited to, receipt and storage of raw materials, chlorosilane vapourisers, calciners, chlorine abatement plant, acid recovery plant, refrigeration plant, cooling system, utilities, all storage, warehousing and packaging and despatch of finished products, and emission of non-combustion gases.
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.	'B' train chlorosilane burner and associated plant.	This definition covers the entire fumed silica production plant, including but not limited to, receipt and storage of raw materials, chlorosilane vapourisers, calciners, chlorine abatement plant, acid recovery plant, refrigeration plant, cooling system, utilities, all storage, warehousing and packaging and despatch of finished products, and emission of non-combustion gases.
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, steam recovery and emission of combustion gases.
Section 5.3 A(1)(c)(ii) – Disposal of non-hazardous waste in a facility with a capacity of more than 50 tonnes per day by physico-chemical treatment.	Katalco unit	Effluent (process wastewater) pre-treatment plant.
Directly associated activity.	Treated silica production.	Treatment of fumed silica with silicone (polydimethylsiloxane), product storage and bagging, and emissions from the process.
Directly associated activity.	Gas fired steam generation plant, <20MWth input.	Production of steam for site and emission of combustion gases.
Directly associated activity.	Storage tank farm.	Storage of NaOH, HCl and waste water.
Directly associated activity.	Water demineralisation and softening plant.	Production of demineralised and softened water for site boilers and production process.
Directly associated activity.	Cooling water system	Provision of water for cooling, including water treatment process.
Directly associated activity.	Waste storage and disposal	Storage of hazardous and non-hazardous waste for off-site disposal.
Directly associated activity.	Effluent drainage system.	Surface water run off from the site, effluent transfer to Dow Corning and discharge to sewer.

## **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 propose a suitable methodology for the correction of CO CEM data for temperature, pressure and moisture content. Where direct continuous measurement of these parameters is not proposed the applicability of any correction factors must be justified and the methodology shall include calibration at an appropriate frequency. The proposals shall be submitted in writing to the Agency for approval.	01/04/06
IP2	The Operator shall report to the Agency an options study on the use of filtration and membrane technology for the treatment of trade effluent discharged via emission point S1. The report shall include a programme and timetable, to be approved by the Agency, for the implementation of any identified treatment improvements and changes in trade effluent disposal.	01/05/06
IP3	The Operator shall provide confirmation to the Agency that the bagging machines LEV has been rerouted from release point A16 to A10 and that the installed particulate abatement is BAT compliant.	01/05/06
IP4	The Operator shall carry out a review of the site's Waste Management Procedures. This should be carried out with specific reference to BAT for the Inorganic Chemicals Sector Guidance Note IPPC S4.03 and the outcome reported to the Agency. The timescale for implementing identified improvements will be agreed with the Agency.	01/06/06
IP5	The Operator shall develop the proposed formal energy policy. This should include as a minimum, a description of site procedures to ensure the responsible use of energy, communication strategies for employees and their responsibilities, procedures for the monitoring and review of energy efficiency and associated energy management techniques. The Agency shall be provided with a copy of the policy.	01/06/06
IP6	The Operator shall prepare and implement a maintenance and inspection procedure for all subsurface structures. This shall include a procedure for periodic drain surveys to assess their integrity. The procedures and proposed maintenance and inspection frequencies shall be submitted to the Agency for approval.	01/09/06
IP7	The Operator shall review and update where necessary all appropriate site training procedures and documents to ensure effective identification of environmental risks and their control. The need for consideration of environmental issues as part of the site's purchasing policies should also be defined in the relevant procedures. Written confirmation shall be provided to the Agency upon completion.	01/10/06
IP8	The Operator shall assess the risk of potential accidental releases of chlorosilane from the site and evaluate the consequent environmental impact. Options for the mitigation of such releases shall be considered and any necessary improvements identified to minimise the environmental impact of accidental releases. A report shall be submitted to the Agency and the timetable for necessary improvements approved.	01/11/06
IP9	The Operator shall submit a written Closure Plan that shall be approved by 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.	01/11/06
IP10	The Operator shall complete a BAT assessment for the abatement of CO releases from the treated silica plant (A13). The assessment should include quantification of the CO releases over the duration of a typical batch production. It should also identify the suitability or otherwise of identified abatement techniques and provide justification for any proposed departures from BAT. A report shall be submitted to the Agency that includes a programme, approved by the Agency, for any abatement installation.	01/12/06
IP11	The Operator shall quantify the release of polydimethylsiloxane from release point A13. The methodology used shall be approved by the Agency prior to the commencement of any monitoring programme. A report shall be submitted to the Agency.	01/12/06
IP12	The Operator shall provide suitable safe and accessible sampling locations at A2, A3 and A13 having regard to Monitoring Technical Guidance Note M1.	01/12/06
IP13	The Operator shall demonstrate that the CO continuous monitoring equipment is fit for purpose by comparing the manufacturer's stated performance with the performance criteria for equivalent equipment having an MCERTS certificate as given in document 'MCERTS	01/12/06

	Performance Standard for Continuous Emission Monitoring Systems version 2 Revision 1, April 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 of suitable replacement equipment. Any timescales shall be approved by the Agency.	
IP14	<p>The Operator shall complete a BAT assessment on the emissions abatement process (chlorine and acid recovery), this shall address as a minimum the following:</p> <ol style="list-style-type: none"> <li>1) assessment of abatement options for all emissions to air and water with reference to current and emerging techniques including multi stage methane and hydrogen injection,</li> <li>2) comparison of the performance of the existing abatement process with BREF benchmarks and where departures in performance standards exist necessary improvements shall be identified,</li> <li>3) identification of appropriate techniques that will enable improved monitoring and control of the chlorine abatement process such that continued operation at optimum efficiency is ensured, and</li> <li>4) an agreed programme for the completion of necessary plant modifications.</li> </ol> <p>A detailed report shall be submitted to the Agency.</p>	01/01/07
IP15	The Operator shall review the options for reducing the quantity of fresh water used to seal the site's water sealed pumps. The findings shall be reported to the Agency and a timetable to implement any improvements identified and approved by the Agency.	01/02/07
IP16	The Operator shall assess the environmental impact and fate of polydimethylsiloxane released to the environment from the treated silica plant. A report shall be submitted to the Agency that confirms or otherwise the significance of the releases and where necessary proposes installation of abatement equipment. The type of such abatement and installation programme shall be approved by the Agency.	01/06/07
IP17	The Operator shall identify if appropriate electrical consumption data can be obtained from the existing electrical metering and distribution system. The information should be sufficient to enable electrical consumption by individual process areas to be determined and savings from energy efficiency measures to be quantified. Where the existing system is inadequate necessary improvements shall be identified and a programme for upgrading the existing equipment proposed. The completion date for the programme shall be approved by the Agency. A report shall be submitted to the Agency.	01/07/07
IP18	The Operator shall review the existing capability for the accurate monitoring of water consumption at all significant usage points. Where existing metering is not capable of providing accurate consumption data or does not exist, appropriate metering equipment shall be installed. A report shall be provided to the Agency that details the findings of the review and describes the location of any new metering equipment. The review and installation of any new meters should be carried out with the aim of satisfying the requirements for the water efficiency audit, Permit Condition 2.4.1.2.	01/09/07
IP19	<p>The Operator shall evaluate the potential for:</p> <ol style="list-style-type: none"> <li>i) CO emission reductions to allow for a significant reduction in the CO ELV, and</li> <li>ii) chloromethanes reduction to allow for a significant reduction in the chloromethanes ELV.</li> </ol> <p>Any reductions should be without significant adverse impact on the releases of other species and consistently achievable including during periods of plant start up, shut down and changes in product grade. A report shall be submitted to the Agency that provides confirmation of the potential to meet lower ELV's, or, comprehensive justification for no changes to the ELV's.</p>	Within six months of the completion of any plant modifications following IP14.

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 pages 4 to 31 of the application	17/08/05
Further information	Revised plan and location of sewer emission point S1	19/12/05
Further information	Update to original improvement programme	27/01/05
Further information	Update to description of release points to air	06/02/06
Further information	Revised plan and location of effluent transfer point E1	16/03/06

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 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	Silica production plant, acid recovery plant and vent scrubber discharges via 36m stack.	Point A1 on site plan in Application.
A2	Hydrogen production plant via 20m stack.	Point A2 on site plan in Application.
A3	Steam generation boilers via 17m stack.	Point A3 on site plan in Application.
A4	Fumed silica calciner A via 20m stack.	Point A4 on site plan in Application.
A5	Fumed silica calciner B via 20m stack.	Point A5 on site plan in Application.
A6	Central vacuum cleaning system for untreated silica via abatement.	Point A6 on site plan in Application.
A7	Central vacuum cleaning system for treated silica via abatement.	Point A7 on site plan in Application.
A8	De-aerator vent	Point A8 on site plan in Application.
A9	Silica feed tank TK26 vent via abatement.	Point A9 on site plan in Application.
A10	All bagging machines LEV via abatement.	Point A10 on site plan in Application.
A11	Treated plant silica feed tank and surge tank vent via abatement.	Point A11 on site plan in Application.
A12	Treated silica product storage silo vent via abatement.	Point A12 on site plan in Application.
A13	Treated silica reactors and production separation conveying air via 12.75m stack.	Point A13 on site plan in Application.
A14	Treated plant bagging machine and JC9 vacuum pump vent via abatement.	Point A14 on site plan in Application.
A15	Untreated plant bagging machine and JC7 vacuum pump vent via abatement.	Point A15 on site plan in Application.
A16	Untreated silica bagging machines JC7, JC8, and JC12 exhaust to sweeps, treated bagging machine JC9 exhaust to sweeps, treated silica rework station to sweeps and big bagging machine LEV to sweeps vent via abatement.	Point A16 on site plan in Application.
A17	Untreated plant bagging machine JC8 vacuum pump vent via abatement.	Point A17 on site plan in Application.
A18	Untreated plant bagging machine JC12 vacuum pump vent via abatement.	Point A18 on site plan in Application.
A19	Untreated plant bagging machine JC4 vacuum pump vent via abatement.	Point A19 on site plan in Application.
A20	Untreated plant bagging machine JC5 vacuum pump vent via abatement.	Point A20 on site plan in Application.
A21	Denser JC1 vacuum pump vent via abatement.	Point A21 on site plan in Application.
A22	Denser JC6 vacuum pump vent via abatement.	Point A22 on site plan 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.

Table 2.2.2 : Emission limits to air and monitoring

Emission point reference	Parameter	Limit (including Reference Period) <sup>Note 1,4</sup>	Monitoring frequency	Monitoring method
A1	Carbon monoxide	3500 mg/m <sup>3</sup> daily average <sup>Note 2</sup>	Continuous	ISO 12039
A1	Oxides of nitrogen as NO <sub>2</sub>	50 mg/m <sup>3</sup> hourly average	Annually	ISO 10849
A1	Hydrogen chloride	10 mg/m <sup>3</sup> hourly average <sup>Note 3</sup>	Quarterly <sup>Note 3</sup>	BS EN 1911:1998 Parts 1 to 3, US EPA 26 or 26A
A1	Chlorine	10 mg/m <sup>3</sup> hourly average	Quarterly	US EPA Method 26 or 26A
A1	Chloromethanes <sup>Note 5</sup>	50 mg/m <sup>3</sup> hourly average	Quarterly	BS EN 13649
A2	Oxides of nitrogen as NO <sub>2</sub>	200 mg/m <sup>3</sup> hourly average	Annually	ISO 10849
A2	Carbon monoxide	200 mg/m <sup>3</sup> hourly average	Annually	ISO 12039
A13	Formaldehyde	2 mg/m <sup>3</sup> hourly average	Six monthly	US EPA Method 316
A6, A7, A9, A10, A11, A12, A14, A15, A16, A17, A18, A19, A20, A21, A22	Particulate	No visible releases of dust with no evidence of deposition in vicinity of stack discharge	None	Not applicable

Note 1: See Section 6 for reference conditions

Note 2: Not more than one calendar monthly average during any rolling twelve month period shall exceed the limit value by more than 10%. Not more than one half hour period (commencing on the hour or half hour) during any 24 hour period shall exceed the limit value by more than 50%.

Note 3: 15mg/m<sup>3</sup> and monthly monitoring frequency prior to completion of Improvement Item 14.

Note 4: Where spot tests are employed the above limit shall be applied over the period of the test which shall not be less than 1 hour.

Note 5: Including CH<sub>3</sub>Cl, CH<sub>2</sub>Cl<sub>2</sub>, CHCl<sub>3</sub> and CCl<sub>4</sub>.

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**

<b>Emission Point Reference or description</b>	<b>Source</b>	<b>Receiving Water</b>
W1 on site plan in Application	Site surface water drainage via tilted plate interceptor	River Cadoxton
W2 on site plan in Application	Site surface water drainage via oil interceptor	River Cadoxton
W3 on site plan in Application	Site surface water drainage via oil interceptor	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.

**Table 2.2.5 : Emission limits to water and monitoring**

<b>Emission point reference</b>	<b>Parameter</b>	<b>Limit (including Reference Period)</b>	<b>Monitoring frequency</b>	<b>Monitoring method <sup>Note 1</sup></b>
W1	Oil and grease	5mg/l	Quarterly	SCA Blue book 77 ISBN 0117517283
W1	BOD <sub>5</sub>	20mg/l	Quarterly	SCA Blue book 130 ISBN 0117522120
W1	pH	>5, <9	Quarterly	BS 6068-2.50:1995
W2	Oil and grease	5mg/l	Quarterly	SCA Blue book 77 ISBN 0117517283
W2	BOD <sub>5</sub>	20mg/l	Quarterly	SCA Blue book 130 ISBN 0117522120
W2	pH	>5, <9	Quarterly	BS 6068-2.50:1995
W3	Oil and grease	5mg/l	Quarterly	SCA Blue book 77 ISBN 0117517283
W3	BOD <sub>5</sub>	20mg/l	Quarterly	SCA Blue book 130 ISBN 0117522120
W3	pH	>5, <9	Quarterly	BS 6068-2.50:1995

Note 1: Or other EN, ISO, BS or SCA Blue Book method as approved by the Agency.

2.2.2.6 No condition applies.

## **Emissions to sewer**

2.2.2.7 Emissions to sewer from the specified emission points in Table 2.2.7 shall only arise from the source(s) specified in that Table. There are no specific controls imposed on emissions to sewer in this Part of the Permit.

Table 2.2.7 Emission points to sewer

Emission point reference or description	Source	Sewer
S1 on site plan in Application	Domestic sewage and cooling water blowdown	Welsh Water plc

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.

## 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 No condition applies.

## 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 No condition applies.

## 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 Permitted 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 <sup>Note 1</sup>	Monitoring frequency	Monitoring method	Other specifications
A3	Oxides of nitrogen as NO <sub>2</sub>	Annually	ISO 10849	None
A3	Carbon monoxide	Annually	ISO 12039	None

Note 1: See Section 6 for reference conditions

- 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 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 2.10.2 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.
- 2.10.9 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 Permitted 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 Transfers to effluent treatment plant(s) shall occur only from the point(s) specified in Table 2.13.1 and transfers from those points shall arise only from the source(s) and shall be released only to the treatment plant(s) specified in that Table.

**Table 2.13.1 Transfer point(s) to effluent treatment plant(s)**

<b>Transfer point description/ Identifier</b>	<b>Source</b>	<b>Effluent Treatment Plant</b>
E1 on site plan in Application	Process effluent	Dow Corning Ltd.

- 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 Permitted 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 Permitted 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.
- 4.1.8 No condition applies.

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

**Notifications**

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- 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 Permitted 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.

**Interpretation**

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"*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	
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### 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 Cabot Carbon 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.

Parameter	Emission point	Reporting period	Period begins
Carbon monoxide, mg/m <sup>3</sup>	A1	Every 3 months	01/04/06
Carbon monoxide, mg/m <sup>3</sup>	A2, A3	Every 12 months	01/01/06
Oxides of nitrogen as NO <sub>2</sub> , mg/m <sup>3</sup>	A1, A2, A3	Every 12 months	01/01/06
Hydrogen chloride, mg/m <sup>3</sup>	A1	Every 3 months	01/04/06
Chlorine, mg/m <sup>3</sup>	A1	Every 3 months	01/04/06
Chloromethanes, mg/m <sup>3</sup>	A1	Every 3 months	01/04/06
Formaldehyde, mg/m <sup>3</sup>	A13	Every 12 months	01/01/06
BOD <sub>5</sub> mg/l	W1, W2, W3	Every 3 months	01/04/06
Oil and grease, mg/l	W1, W2, W3	Every 3 months	01/04/06
pH	W1, W2, W3	Every 3 months	01/04/06
Water usage	Permitted installation	Every 12 months	01/01/06
Energy usage	Permitted installation	Every 12 months	01/01/06
Waste disposal and/or recovery.	Permitted installation	Every 12 months	01/01/06

## Schedule 3 - Forms to be used

Table S3: Reporting Forms		
Media / parameter	Form Number	Date of Form
Air	A1, A2, A3	01/02/06
Water (excluding sewer)	W1	01/02/06
Energy	E1	01/02/06
Waste Return	R1	01/02/06
Water usage	WU1	01/02/06
Performance indicators	PI1	01/02/06

## 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 silica	tonnes
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**Table S4.2: Performance parameters**

Parameter	Frequency of assessment	Performance indicator
Water use	Annually	m <sup>3</sup> /tonne
Energy use	Annually	kWh/tonne
Carbon dioxide	Annually	tonne/tonne
Hydrogen use	Annually	Nm <sup>3</sup> /tonne
Chlorosilane use	Annually	tonne/tonne
Carbon monoxide	Annually	kg/tonne
Waste silica	Annually	kg/tonne

No data is required to be recorded and reported by Condition 4.1.8.

## **Schedule 5 - Site Plan**

The site plan comprises two views as follows:

Figure 1 – Overview of the complete installation showing the Cabot Carbon boundary edged in green and the other sites that comprise the installation edged in red.

Figure 2 – Detailed plan that defines the Cabot Carbon site boundary.

Figure 1 and Figure 2 have 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.

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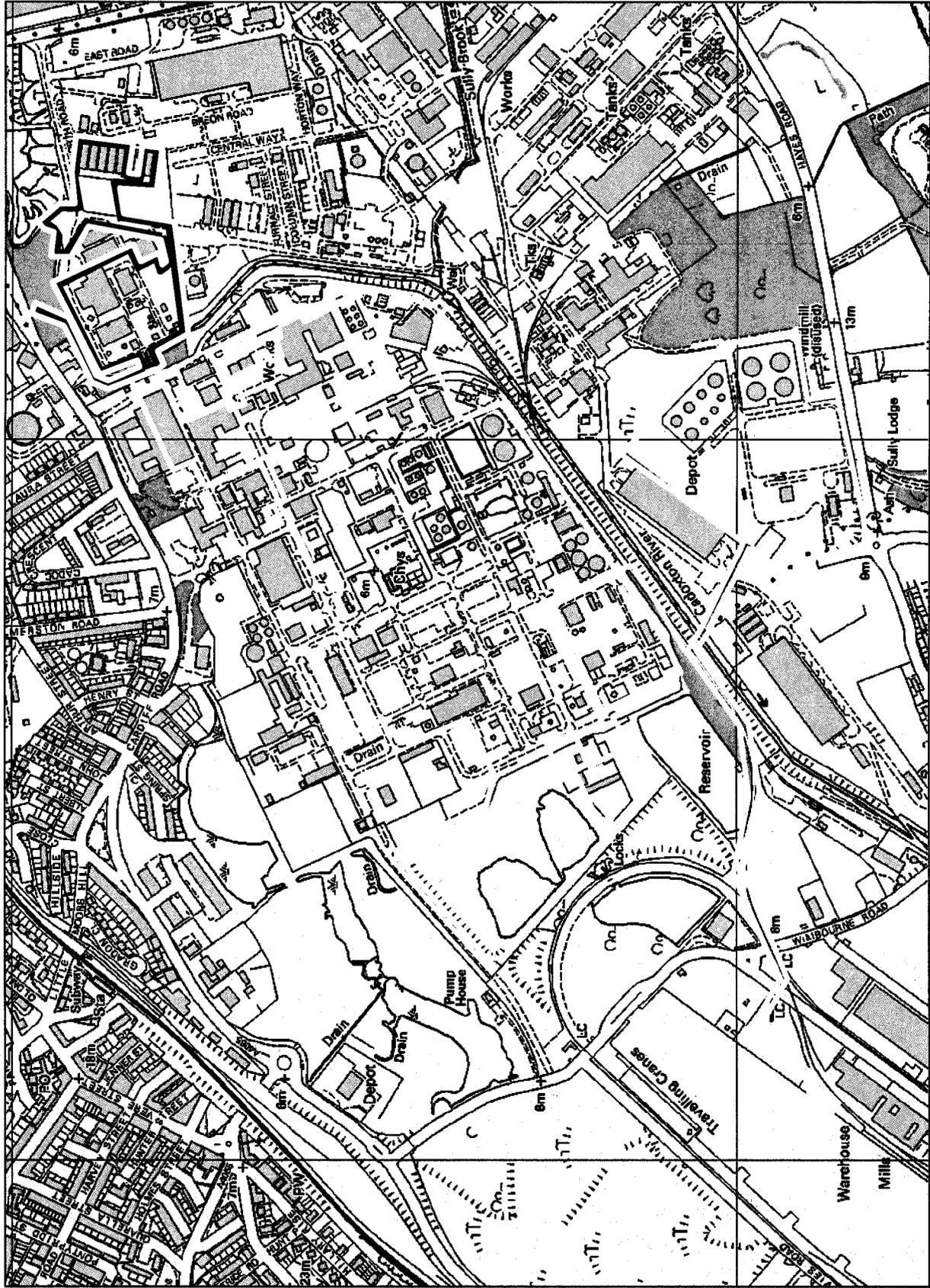


Figure 1

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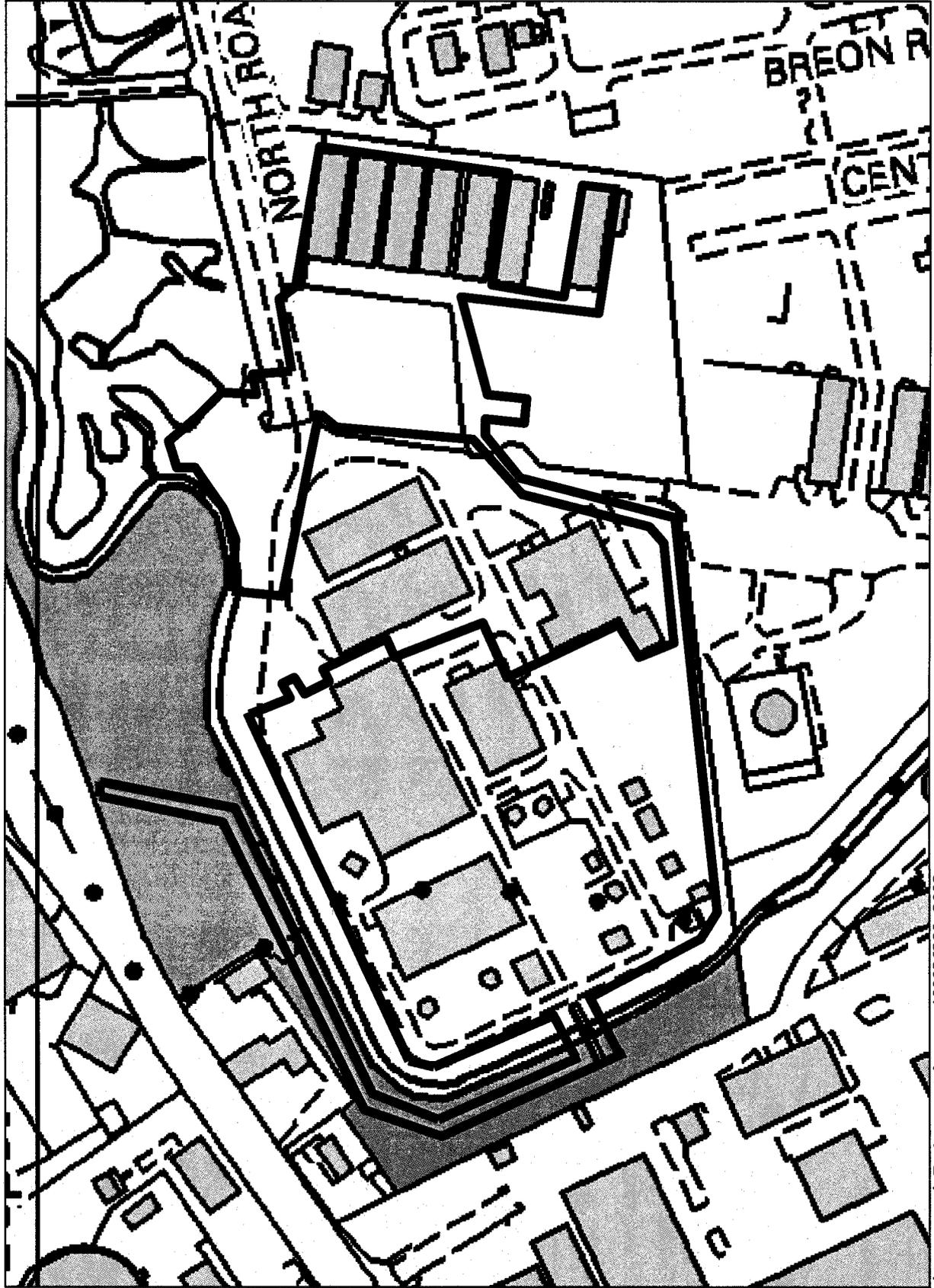


Figure 2