# Variation notice with introductory note

Environmental Permitting (England & Wales) Regulations 2007

Barry Silicon Based Manufacturing Installation

Dow Corning Limited
Barry Plant
Cardiff Road
Barry
Vale of Glamorgan
CF63 2YL

Variation notice number
EPR/BR9685IX/V004

Permit number

EPR/BR9685IX

# Dow Corning Ltd

# Barry Silicon Based Manufacturing Installation
# Permit Number EPR/BR9685IX

**Introductory note**

***This introductory note does not form a part of the permit***

The following notice, which is issued pursuant to regulation 20 and Part 1 of Schedule 5 of the Environmental Permitting (England and Wales) Regulations S.I.2007 No. 3538 (the Regulations), gives notice of the variation of an environmental permit to operate a regulated facility.

The primary function of the Dow Corning site is the manufacture of silicones and silicone intermediates under 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. This variation is required to permit:

- Installation of a new water scrubber releasing emissions to air via a new release point to be used during plant maintenance and abnormal operating conditions. There are no changes to the overall emissions emitted from the operation.

There are three other minor changes also included in this permit variation:

- Reduction in flow through W1
- Removal of emission limit value for halogenated organic compounds released via W1
- Amendment of date for submission of annual environmental report.

There is no increase in emissions from the installation as a result of this variation.

Schedule 1 of this notice lists any deleted conditions, Schedule 2 lists any amended conditions, Schedule 3 lists any conditions that have been added and Schedule 4 shows any changes to the plan.

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The status log of a permit sets out the permitting history, including any changes to the permit reference number

| Status Log of the permit | | |
|---|---|---|
| **Detail** | **Date** | **Response Date** |
| Application BR9685IX | Received 17/08/05 | |
| Response to request for information BR9685IX | Requests dated: 30/09/05, 07/10/05, 21/10/05, 25/10/05, 03/11/05, 09/11/05 | 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 BR9685IX | Request dated 14/12/05 | Request accepted 09/01/06 |
| Permit determined BR9685IX | 06/06/06 | |
| Application HP3138UU | Duly made 01/05/07 | |
| Additional information received HP3138UU | | 08/05/07 |
| Response to request for additional information HP3138UU | 15/05/07 | 30/05/07 |
| Variation notice HP3138UU issued | 27/06/07 | |
| Application EA/EPR/BR9685IX/V003 | Duly made 08/09/08 | |
| Variation notice EA/EPR/BR9685IX/V003 issued | 19/11/08 | |
| Application EA/EPR/BR9685IX/V004 (PAS reference: LP3231KF) | Duly made 07/12/09 | |
| Additional information received EA/EPR/BR9685IX/V004 | | 05/02/10 |
| Additional information received EA/EPR/BR9685IX/V004 | | 08/03/10 |
| Variation notice EA/EPR/BR9685IX/V004 issued | 10/03/10 | |

| Other PPC permits relating to this installation | | |
|---|---|---|
| **Operator** | **Permit Number** | **Date of Issue** |
| Cabot Carbon Ltd. | BU2110IS | 31/03/06 |
| Npower Cogen Ltd. | BX4135IJ | 30/06/06 |
| Vopak Terminal Windmill Ltd. | KP3734SH | 01/06/06 |

End of Introductory Note

Notice of variation

Environmental Permitting
(England and Wales) Regulations 2007

Permit number
**EPR/BR9685IX**

The Environment Agency in exercise of its powers under Regulation 20 of the Environmental Permitting (England and Wales) Regulations 2007 (SI 2000 No 3538) varies the permit as set out below.

**Dow Corning Ltd** ("the operator"),

whose registered office is

**Dow Corning UK**
**Cardiff Road**
**Barry**
**Vale of Glamorgan**
**CF63 2YL**

company registration number **486170**

holds a permit to operate a regulated facility at

**Barry Plant**
**Cardiff Road**
**Barry**
**Vale of Glamorgan**
**CF63 2YL**

and that permit is varied to the extent set out in Schedules 1 to 4 of this notice.

The notice shall take effect from 10/03/10

| Name | Date |
|---|---|
|  | 10 March 2010 |

Eirian Macdonald

Authorised on behalf of the Environment Agency

## Schedule 1 – conditions to be deleted

None.

## Schedule 2 – conditions to be amended

The following conditions are amended as follows:

Condition 2.1.1 is amended such that Table 2.1.1 is amended to:

**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 excluding Section 9 and Appendix 7 of the application. | 17/08/05 |
| Further information | Two new separation processes. | 24/01/06 |
| Application for Variation EA/EPRBR9685IX/V004 | Amended Appendix 4, Section 9 | 01/12/09 |

Condition 1.4.1 is amended such that Table 1.4.1 is amended to:

**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:<br>a) undertake a comparison of the environmental risk assessments for silane and methylsilanes to determine the environmental significance of methylsilane releases to air;<br>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;<br>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.<br>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 |

| Table 1.4.1: Improvement programme | | |
|---|---|---|
| **Reference** | **Requirement** | **Date** |
| 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 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. | 01/01/07 |
| 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 |

| Table 1.4.1: Improvement programme | | |
|---|---|---|
| **Reference** | **Requirement** | **Date** |
| 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 |

| Table 1.4.1: Improvement programme | | |
|---|---|---|
| **Reference** | **Requirement** | **Date** |
| 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;<br>• the need for detailed characterisation and quantification of siloxane releases to air from specified release points and fugitive releases,<br>• the requirement for improved abatement of such releases,<br>• dispersion modelling,<br>• timescales for the implementation of necessary improvements.<br>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 |
| IP29 | Submit a written commissioning report to the Environment Agency for approval. The report shall compare the design parameters of the new scrubber with operating conditions, including hydrogen chloride removal efficiency. Where deficiencies arise, the report must contain dates for the implementation of individual improvement measures. The notification requirements of condition 1.4.1 will be deemed to have been complied with on submission of the report. | Three months following commissioning of the new air scrubber. |

Condition 2.2.1.2 is amended such that Table 2.2.1 is amended to:

**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 | Not assigned | Not assigned |
| A20 | W716 Hydrolysis Plant vent via condenser | Point A20 on site plan B2.2.2 in Application |
| A21 | Not assigned | Not assigned |
| 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 |

| Table 2.2.1 : Emission points to air | | |
|---|---|---|
| **Emission point reference or description** | **Source** | **Location of emission point** |
| 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 |
| 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 |

| Table 2.2.1 : Emission points to air | | |
|---|---|---|
| **Emission point reference or description** | **Source** | **Location of emission point** |
| 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 |
| 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 |

| Table 2.2.1 : Emission points to air | | |
|---|---|---|
| **Emission point reference or description** | **Source** | **Location of emission point** |
| 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 A100on 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 |
| A111 | W930 FBR Catalyst Powder Unloading System Vent | Point A111 on revised Air vent drawing |
| A112 | W205 3401 Tilt Mixer Vent | Point A112 on revised Air vent drawing |
| A113 | W205 301 Small Tilt Mixer Vent | Point A113 on revised Air vent drawing |
| A114 | W1205 200 DPR Quench Vent | Point A114 on IPPC Drawing B2.2.2 Emissions/Discharge points to air/water |
| A115 | W806 Tertiary Water Scrubber Vent | Point A115 on Site_map_17_11_01 |

Conditions 2.2.2.4 and 2.2.2.5 is amended such that Table 2.2.5 is amended to:

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

| Emission point reference | Parameter | Limit (including Reference Period) | Monitoring frequency | Monitoring method (4) |
|---|---|---|---|---|
| W1 via monitoring point M1 on diagram B2.2.54 submitted 05/02/10. | Flow | 11000 $m^3$/day | Continuous | To an agreed relevant EN, BS, or ISO standard |
| W1 via monitoring point M1 on diagram B2.2.54 submitted 05/02/10. | Flow | 625 $m^3$/hour | Continuous | To an agreed relevant EN, BS, or ISO standard |
| W1 via monitoring point M1 on diagram B2.2.54 submitted 05/02/10. | Temperature | 40 °C (1) | Continuous | An agreed method (6) |
| W1 via monitoring point M1 on diagram B2.2.54 submitted 05/02/10. | pH | ≥ 6, ≤ 9 | Continuous | No standard method is available (3) |
| W1 via monitoring point M1 on diagram B2.2.54 submitted 05/02/10. | Suspended solids | 30 mg/l (1) daily composite | Daily | SCA Blue Book 105 ISBN 011751957X |
| W1 via monitoring point M1 on diagram B2.2.54 submitted 05/02/10. | $BOD_5$ | 20 mg/l (2) | Monthly | SCA Blue Book 130 ISBN 0117522120 |
| W1 via monitoring point M1 on diagram B2.2.54 submitted 05/02/10. | Copper | 0.1 mg/l (1), (5) daily composite | Daily | BS ISO 17294-2:2003 BS 6068-2.89:2003 |

| Table 2.2.5 : Emission limits to water and monitoring | | | | |
|---|---|---|---|---|
| **Emission point reference** | **Parameter** | **Limit (including Reference Period)** | **Monitoring frequency** | **Monitoring method (4)** |
| W1 via monitoring point M1 on diagram B2.2.54 submitted 05/02/10. | Zinc | 0.5 mg/l (1) daily composite | Daily | BS ISO 17294-2:2003 BS 6068-2.89:2003 |
| W1 via monitoring point M1 on diagram B2.2.54 submitted 05/02/10. | Hydrocarbon oil | No visible sheen | Weekly | An agreed method (7) |
| 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(7) |

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: 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 10523:1984.

Note 4: Or to an EN, BS, ISO or SCA Blue Book standard as agreed in writing with the Agency.

Note 5: 0.2mg/l until completion of IP24.

Note 6: The Operator shall submit a method for temperature monitoring that shall be approved by the Agency.

Note 7: The Operator shall submit a method for the assessment of hydrocarbon oil contamination that shall be approved by the Agency.

Condition 4.1.5 is amended to:

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 March in each year, provide a summary report of the previous year's progress against such targets.

Condition 2.2.8.1 is amended such that Table 2.2.11 is amended to:

**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,<br>A29, A35, A38, A39, A42, A49, A51, A55, A56, A76, A90-92,<br>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. |
| Storm water released via W1 | Continuous monitoring of total oxygen demand (TOD). Flow is automatically stopped on detection of contamination. |
| W806 Tertiary Scrubber | Record and maintain an electronic or written log of operating efficiency using a methodology agreed by the Environment Agency. |

Conditions 4.1.2 and 4.1.3 are amended such that Table S2 of Schedule 2 is amended to:

**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 |
| Temperature | W1 | Every 3 months | 01/07/06 |

| | | | |
|---|---|---|---|
| °C | | | |
| Suspended solids mg/l | W1, W2 | Every 3 months | 01/07/06 |
| Biochemical oxygen demand mg/l | W1, W2 | Every 3 months | 01/0706 |
| Chemical oxygen demand mg/l | W2 | Every 3 months | 01/0706 |
| Copper mg/l | W1, W2 | Every 3 months | 01/07/06 |
| Zinc mg/l | W1, W2 | 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 – conditions to be added

None.

## Schedule 4 – amended plan

None.