

# Notice of variation and consolidation with introductory note

**The Environmental Permitting (England & Wales) Regulations 2010**

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PQ Silicas UK Limited

Warrington Silicas Installation  
Bank Quay  
4 Liverpool Road  
Warrington  
Cheshire  
WA5 1AQ

**Variation application number**

EPR/RP3233GW/V004

**Permit number**

EPR/RP3233GW

# Warrington Silicas Installation

## Permit number EPR/RP3233GW

### Introductory note

#### **This introductory note does not form a part of the notice**

Under the Environmental Permitting (England & Wales) Regulations 2010 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made and contains all conditions relevant to this permit. Only the variations specified in schedule 1 are subject to a right of appeal.

The requirements of the Industrial Emissions Directive (IED) 2010/75/EU are given force in England through the Environmental Permitting (England and Wales) Regulations 2010 (the EPR) (as amended).

This Permit, for the operation of large combustion plant (LCP), as defined by articles 28 and 29 of the Industrial Emissions Directive (IED), is varied by the Environment Agency to implement the special provisions for LCP given in the IED, by the 1 January 2016 (Article 82(3)). The IED makes special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V.

The Operator has chosen to operate this LCP under the ELV compliance route with the exception of oxides of nitrogen (NO<sub>x</sub>) which will operate under the Transitional National Plan (TNP) compliance route.

The net thermal input of the LCP is as follows:

LCP 254 –three natural gas fired boilers each with a net thermal input of 27.7 MW (total 83 MW).

The variation notice uses an updated LCP number in accordance with the most recent DEFRA LCP reference numbers. The LCP reference has changed from LCP 82 to LCP 254.

The rest of the installation is unchanged and continues to be operated as follows:

The Permit is to operate an installation carrying out activities covered by the following descriptions in Schedule 1 of the EP Regulations:

Section 1.1 Part A(1)(a) - "Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more."

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

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

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

The Installation is located at national grid reference SJ 597 879 close to Warrington town centre and is bisected by the River Mersey and a public footpath. It has been involved in the manufacture of chemicals for over 200 years.

The installation comprises a number of chemical processing plants, which include the manufacture of:

- sodium silicate and other silicates (lithium and potassium silicates). Product applications include laundry and dishwasher detergents, adhesives, cements and sewer repair, water treatment and ceramics.
- non-crystalline (hydrated amorphous) silicon dioxides. Product applications include personal care (denatal and skin care), surface coatings, beer processing, desiccants and as free flow aids. Speciality silicas are used as catalysts in the oil refining industries.
- crystalline aluminosilicates (zeolites). These products are used in applications such as detergents as an alternative to phosphate, paper and plastic formulations.
- Sodium silicates are produced in the 'Silicate Plant'. These are either further processed on other plants or are sold as product. Sodium silicate is produced in two ways. In the first route, sand and soda ash are combined at high temperature in a furnace to produce a solid, soluble sodium silicate. This solid material is then dissolved, and in some cases blended with other materials according to customer requirements. The silica producing plants principally use this material. The second route reacts sand and caustic soda under specified conditions to produce silicates with a different chemical composition and physical structure. This material is principally transferred to the Zeolite process, or sold as final product, but can also be used as a raw material for silica production.
- Lithium and potassium silicates are also produced on a small scale.
- The Silicate is transferred to storage tanks where it is transferred to other areas of the installation, or to drums or tankers or third parties.
- The zeolites process requires sodium silicate produced via the second route and alumina trihydrate, both of which are prepared in the plant before transfer to reaction vessels for production of zeolite. The resulting slurry is filtered and washed, and caustic material is recovered by evaporation for re-use in the aluminate preparation stage. Wash liquor is also used to neutralise some of the primary acidic effluent on other areas of the installation. Following ring drying, material is transferred to silos for storage prior to dispatch.
- Amorphous silica is produced through one of two routes on the installation. The precipitation route reacts sodium silicate with sulphuric acid in a two stage reaction process. The precipitated silica is filtered, washed and ring dried, before milling and classification. The Precips area also handles silica intermediate feedstocks, which are micronised and packed before transfer to the warehouse as finished product.
- The gel formation route uses sodium silicate and sulphuric acid to produce silica gel. This is formed on a gel belt. Gel washing and drying techniques depend on the product requirements, as do the further processing operations.
- Speciality materials, such as highly specified catalysts are produced in the speciality catalysts plants. Surface modifications may take place in some plants by coating the silica with specified materials. In the FPA, certain reactions result in liberation of ammonia.
- The Installation includes coating operations and boiler plant. The boiler plant (LCP 254) consists of 3 boilers, each of 27.7 MW thermal input (83 MW total). The boilers are fired on natural gas and are subject to Chapter III of the IED. Emissions discharge from the 61 m boiler plant stack at emission point A36.
- Principle raw materials used at the site are sand (solid), sodium hydroxide liquor (caustic soda), sulphuric acid (liquor), aluminium tri-hydrate (solid), sodium carbonate (soda ash) and sodium chloride liquor (brine). Waste handling for the site is managed centrally, waste is stored by type in clearly identified areas and where feasible is segregated for recycling.
- Oxides of nitrogen, particulates and sulphur dioxide are emitted to air. Process effluent is emitted to the River Mersey via effluent treatment plants.

- Emissions of particulates are abated through bag filters, wet scrubbers, cyclones and cassette filters. Emissions of VOC's are abated through condensers. Emissions of odour, visual impact and energy have been identified as insignificant.
- Within the installation there are 36 emission points to air, and seven emission points to controlled waters (the River Mersey). There are two effluent treatment plants (ETP's) within the installation; the Precips ETP and the Gels ETP. The Precips ETP is a dedicated facility used for liquid effluent generated from the Precipitates Plant and the No 4 Microniser. The Gels ETP is used to neutralise the pH of effluent from the Gels, Silicate and A24 Plants. Furthermore there are seven emission points to sewer, for which there are trade effluent discharge consents issued by the Sewerage Undertaker, which discharge to Warrington North STW.
- The Operator is a participant in the Underlying Climate Change Levy Agreement for the Chemical Sector. The Installation operates an Environmental Management System (EMS) certified to ISO 14001.
- The nearest sites with statutory nature conservation designations are Manchester Mosses and Rixton Clay Pits Special Areas of Conservation (SACs) and Mersey Estuary Special Protection Area (SPA). The Agency concludes that the operation has no adverse effect on any Natura 2000 sites and is not considered to have an adverse effect on any important ecological sites.

The schedules specify the changes made to the permit.

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

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application BM0354IP	Received 12/08/05	
Schedule 4 notice for more information issued	Request dated 07/03/06	Response received 10/04/06
Request for further information	Request dated 05/04/06	Response received 13/04/06
Request for further information	Request dated 25/04/06	Response received 28/04/06
Revised emission point plan and site plan showing installation boundary	Received 27/06/06	
Revised site plan showing installation boundary	Received 13/06/06	
Permit issued	30/06/06	
Variation notice CP3335MN issued	18/10/06	To amend temperature limit at W1
Variation notice FP3139XK issued	17/12/07	To implement the National Emissions Reduction Plan (NERP)
Application EPR/RP3233GW/T001 (full transfer of permit EPR/BM0354IP)	Duly made 25/09/08	Full transfer of permit From INEOS Silicas Limited To PQ Silicas UK Limited
Request for further information	Requested 24/11/08	Response received 24/11/08
Transfer determined EPR/RP3233GW/T001	25/11/08	
Variation application EPR/RP3233GW/V002	Duly Made 22/02/10	To amend conditions for the discharge to the River Mersey
Additional Information	Requested 01/06/10	Received 01/06/10

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Variation EPR/RP3233GW/V002 issued	07/06/10	
Variation application EPR/RP3233GW/V003	Duly Made 06/07/11	To improve the heat exchange between the hot filtrate and incoming cooler water and to increase the volume of effluent to the River Mersey
Variation EPR/RP3233GW/V003 issued	28/09/11	
Regulation 60 Notice sent to the Operator	31/10/14	Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency Initiated review and variation to vary the permit under IED to implement the special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V.
Regulation 60 Notice response	25/03/15	Response received from the Operator.
Variation determined EPR/RP3233GW/V004 (Billing ref: LP3838AL)	17/12/15	Varied and consolidated permit issued. Variation effective from 01/01/16

End of introductory note

# Notice of variation and consolidation

## The Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies and consolidates

### Permit number

**EPR/RP3233GW**

### Issued to

**PQ Silicas UK Limited** (“the operator”)

whose registered office is

#### **Bank Quay**

**4 Liverpool Road**

**Warrington**

**Cheshire**

**WA5 1AQ**

company registration number **06458647**

to operate a regulated facility at

#### **Warrington Silicas Installation**

**Bank Quay**

**4 Liverpool Road**

**Warrington**

**Cheshire**

**WA5 1AQ**

to the extent set out in the schedules.

The notice shall take effect from 01/01/2016

<b>Name</b>	<b>Date</b>
<b>Anne Nightingale</b>	<b>17/12/2015</b>

Authorised on behalf of the Environment Agency

## Schedule 1

The following conditions have been varied by the consolidated permit as a result of an Environment Agency initiated variation.

Condition 1.1.1 refers to Table 1.1.1, *Activities* which shall be amended by the inclusion of a new description for the LCP, activity reference A1.

Condition 1.4.1 refers to Table 1.4.1, *Improvement Programme* which shall include additional condition IC16.

Condition 2.1.1 refers to Table 2.1.1, *Operating techniques* which shall be amended by the inclusion of operating techniques in the Regulation 60 response.

Condition 2.1.3 shall be added in accordance with the IED.

Condition 2.1.4 shall be added in accordance with the IED.

Condition 2.1.4 refers to Table 2.1.2, *Start-up and Shut-down thresholds* which shall be added in accordance with the IED:

Condition 2.2.1.2 refers to Table 2.2.1, *Emission points to air* which shall be amended to include the LCP number.

Condition 2.2.1.3 refers to Table 2.2.2, *Emission limits to air and monitoring* which shall be amended to change the monitoring requirements at A36 in accordance with the IED and to add the standard for the monitoring infrastructure at A36.

Condition 2.2.1.4 shall be amended to include LCP 254.

Condition 2.2.1.4 refers to Table 2.2.3, *Annual limits to air (excluding start up and shut down)*, which shall be amended as necessary for LCP 254.

Condition 2.2.1.5 and 2.2.1.6 shall be added in accordance with the IED.

Condition 2.10.11 shall be added in accordance with the IED.

Condition 2.11.5 shall be amended in accordance with the IED.

Condition 4.1.2 refers to Table S2, *Reporting of monitoring data* which shall be amended in accordance with the IED (A36).

Condition 4.1.3 refers to Table S3, *Reporting forms* which shall be amended to update forms.

Condition 4.1.3 refers to Table S4.2, *Performance parameters* which shall be amended to include additional parameters for the LCP.

Condition 4.1.8 shall be added. This is required for LCPs under the TNP to enable quarterly reporting of mass emissions.

Conditions 5.1.1 and 5.1.2 shall be amended in accordance with the IED.

Condition 6.1.1 refers to the meaning of expressions (*Interpretation*), the following expressions shall be deleted/amended/added:

“base load” (added)

“Energy efficiency” (added)

“EP Regulations” (added)

“Industrial Emissions Directive” (added).

“large combustion plant” or “LCP” (added)

“MCR” (added)

“MSDL” (added)

“MSUL” (added)

*“National Emission Reduction Plan”* (NERP) (deleted)

*“NERP Register”* (deleted)

“Natural gas” (added)

“ncv” (added)

“operational hours” (added)

“TNP Register” (added)

## **Schedule 2 – consolidated permit**

Consolidated permit issued as a separate document.



## Permit

### The Environmental Permitting (England and Wales) Regulations 2010

#### Permit number

**EPR/RP3233GW**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/RP3233GW/V004 authorising,

**PQ Silicas UK Limited** (“the operator”),

whose registered office is

**Bank Quay  
4 Liverpool Road  
Warrington  
Cheshire  
WA5 1AQ**

company registration number **06458647**

to operate an installation at

**Warrington Silicas Installation  
Bank Quay  
4 Liverpool Road  
Warrington  
Cheshire  
WA5 1AQ**

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

Name	Date
Anne Nightingale	17/12/2015

Authorised on behalf of the Environment Agency

# Conditions

## 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.

<b>Table 1.1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
A1	Section 1.1 Part A(1) (a)  Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	<b>LCP 254</b>  Three natural gas fired boilers each with a net thermal input of 27.7 MW (total 83 MW).	Combustion plant providing steam and compressed air to installation.  From receipt of natural gas to discharge of exhaust gases
A2	Section 4.2 part A(1)(a)(iv)  Producing inorganic chemicals such as salts, such as ammonium chloride, potassium chlorate, potassium carbonate, sodium carbonate, perborate, silver nitrate, cupric acetate, ammonium phosphomolybdate.	The production of lithium silicate, potassium silicate and sodium silicate.	Operation of steam-heated silicate hydrothermal reactor to react sand and sodium hydroxide to produce sodium silicate (alkaline silicate). Operation of silicate mixing tank to produce lithium silicate and potassium silicate. Operation of gas fired furnace. Operation of oil fired furnace in case of loss of gas supply.

<b>Table 1.1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
A3	Section 4.2 Part 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.	The production of silica, sodium aluminate (zeolites) and calcium silicate.	Operation of eight steam-heated crystallisers to produce sodium aluminosilicate (zeolite) from sodium silicate and sodium aluminate.  Operation of three steam-heated reactors in the second stage in production of a range of silica products.  Operation of steam-heated continuous reactor for the production of precipitated calcium silicate; calcium chloride is reacted with sodium silicate and water;  Operation of three gel-making conveyor belts and batch processes to produce silica; sulphuric acid is mixed with sodium silicate to produce silica gel.
A4	Section 4.7 Part A(1)(b)  Any activity for the manufacture of a chemical which involves the use of ammonia or may result in the release of ammonia into the air other than an activity in which ammonia is only used as a refrigerant.	Processes within the Speciality Catalysts Plant leading to emissions of ammonia.	The operation of the Nautamixer in the silanisation of silica and disilazane.
<b>Directly Associated Activity</b>			
A5	Directly associated activity	Gels Effluent Treatment Plant	Dedicated plant for the treatment of effluent generated by the Silicate Plant, A24 Plant and the Gels Plant prior to discharge under EA consent to the River Mersey.
A6	Directly associated activity	Precips Effluent Treatment Plant	Dedicated plant for the treatment of effluent generated by the Precips Plant prior to discharge under EA consent to the River Mersey.
A7	Directly associated activity	Boiler plant water treatment.	From receipt of incoming towns water into raw water tank to introduction into boiler.
A8	Directly associated activity	Storage of raw materials	From receipt of raw materials to despatch of final or intermediate product.

## 1.2 Site

- 1.2.1 The activities authorised under condition 1.1.1 shall not extend beyond the Site, being the land shown shaded in light blue and the technical connections shown as green red or pale blue lines on the Site Plan at Schedule 5 to this Permit.

## 1.3 Overarching management condition

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

## 1.4 Improvement programme

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

<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
1	The Operator shall develop a documented system for maintaining, servicing and calibrating the continuous monitors for emission points A1, A2, A3, A3b, A6, A12 and A14 having regard to BS EN 14181. The Operator shall provide written confirmation to the Agency when this action has been implemented.	Complete
2	The Operator shall carry out monitoring of sulphur dioxide emissions from the Lucilite Plant, having regard to Agency Guidance Notes M1 and M2. The Operator shall carry out an impact assessment on the emission of sulphur dioxide, using Environment Agency guidance note H1 or equivalent methodology. The Operator shall submit a written summary of the monitoring and the impact assessment to the Environment Agency.	Complete
3	The Operator shall submit a written report to the Agency detailing proposed methods for gathering monitoring data to identify and quantify emissions of volatile organic compounds from emission points A29 to A34 and ammonia from emission points A31. The report shall take into account the requirements of the Agency Technical Guidance Notes M1 and M2.	Complete
4	The Operator shall review the provision of MCERTS accreditation for the monitoring equipment, personnel and organisations employed for the emissions monitoring programme in condition 2.10.1 and propose a timetable for achieving this standard for any elements that are not MCERTS certified.	Complete
5	The Operator shall identify measures for reducing the level of ammonia in the emission from W2 to 5mg/l or lower. The Operator shall submit a summary of the measures identified in writing to the Environment Agency with a timescale for implementing the measures.	Complete

<b>Table 1.4.1 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
6	<p>The Operator shall undertake an assessment of the options available to reduce emissions of suspended solids from emission points W1 and W2. The operator shall submit a report to the Agency detailing the preferred options with an implementation plan.</p> <p>The preferred options shall be implemented by the operator from the date of approval by the Agency.</p>	Complete
7	<p>The Operator shall undertake an assessment of options to reduce emissions of nitrogen dioxide from emission point A1. The Operator shall provide a report to the Environment Agency detailing the preferred options with an implementation plan.</p> <p>The preferred options shall be implemented by the operator from the date of approval by the Agency.</p>	Complete
8	<p>The Operator shall undertake monitoring of releases of particulates from emission points A7, A8, A9, A10, A11, A13, A14, A17, A18 and A19 having regard to Section 2.10 of Agency Guidance Note S4.03.</p> <p>The Operator shall carry out an impact assessment on the emission of particulates, using Environment Agency guidance note H1 or equivalent methodology. The Operator shall submit a written summary of the monitoring and the impact assessment to the Environment Agency.</p>	Complete
9	<p>The Operator shall undertake an assessment of options to reduce emissions of particulates from the Silicate Furnace (A1). The Operator shall provide a report to the Agency detailing the preferred options with an implementation plan.</p> <p>The preferred options shall be implemented by the operator from the date of approval by the Agency.</p>	Complete
10	<p>The Operator shall undertake a review of the following pollution prevention features:</p> <ul style="list-style-type: none"> <li>i) Bunding;</li> <li>ii) Surfacing;</li> <li>iii) Loading/unloading areas;</li> <li>iv) Raw material storage areas;</li> <li>v) Waste storage areas;</li> <li>vi) Containment of materials being transferred via pipelines;</li> <li>vii) High level alarms;</li> <li>viii) Delivery and loading/unloading procedures.</li> </ul> <p>This review will have regard to the Agency Guidance PPG11 – Preventing Pollution on Industrial Sites. The operator shall provide a report to the Agency summarising the findings with a proposed timetable to implement any improvements identified. The improvements shall be implemented by the operator from the date of approval by the Agency.</p>	Complete

<b>Table 1.4.1 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
11	The Operator shall develop a written Site Closure Plan with regard to the requirements set out in the Agency Guidance Note IPPC S4.03. The Operator shall submit a copy of the plan to the Environment Agency.	Complete
12	The Operator shall submit a report to the Agency estimating fugitive emissions of volatile organic compounds from the transfer of solvents from barrels, and ammonia from the purging or blanketing of tanks with nitrogen, at the Speciality Catalyst Plant. The report shall include the methodology used and any options proposed to reduce the emissions. The options shall be implemented by the operator from the date of approval by the Agency.	Complete
13	The Operator shall review the condition of the steam distribution systems in order to identify where improvements to energy efficiency can be made.  A summary report of the findings with a timescale for implementing improvements shall be submitted to the Environment Agency.  The improvements shall be implemented by the operator from the date of approval by the Agency.	Complete
14	The Operator shall submit a written report to the Environment Agency for approval on the commissioning of the replacement filter presses for S232 and S234.  The report shall summarise the environmental performance of the equipment and instrumentation as installed against the design parameters set out in the Application. This shall include a review of the effect of the improved heat exchange on the W1 effluent outfall temperature and equipment noise impact checking.  The report shall further include any improvements implemented during commissioning for achieving and demonstrating compliance with permit conditions.	Complete

<b>Table 1.4.1 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
15	<p>The operator shall submit a written report to the Environment Agency for approval covering the results of a thermal survey of the River Mersey around the W1 outfall.</p> <p>This report must include (but is not restricted to):</p> <p>a) compare the values used in the modelling submitted as part of the application for variation EPR/RP3233GW/V003 against temperatures measured in a representative range of tidal conditions when the plant is running as close to the worst case conditions for temperature and discharge rate as it is likely to achieve.</p> <p>b) Consider the effect of the outfall not being into the water directly at lower tide times.</p> <p>c) Measure the effect of other outfalls on the background water temperature.</p> <p>d) Consider the effect of changes in water temperature on eels as well as salmon.</p> <p>Until the report has been approved and any actions arising from it have been successfully implemented the W1 outfall discharge rate is restricted to 3000 m<sup>3</sup>/day during the months of March/April/May (eel migration) and August/September/October (salmon upstream migration).</p>	Complete
16	<p>For LCPD LCP <b>82</b> (now LCP <b>254</b> under IED); annual emissions of dust, sulphur dioxide and oxides of nitrogen including energy usage for the year 01/01/2015 to 31/12/2015 shall be submitted to the Environment Agency using form AAE1 via the NERP Registry. If the LCPD LCP was a NERP plant the final quarter submissions shall be provided on the RTA 1 form to the NERP Registry.</p>	28/01/16

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.



## 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.

<b>Table 2.1.1 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application	The response to questions 2.1 and 2.2 given in pages 15 to 47 of the core application and Appendices A to F of the application.	12/08/05
Further information	Section on maintenance and testing regime for Silicate plant, A24 plant, Precips plant and Gels Plant	10/04/06
Document titled Warrington Precipitates Filter Press Replacement Project June 2011 submitted as part of Variation Application EPR/RP3233GW/V003	Sections 1 and 2	06/07/11
Response to regulation 60(1) Notice – request for information dated 31/10/14	Compliance routes and operating techniques identified in response to questions: 263 – compliance route 265 – choice of fuel (natural gas) 266 – net rated thermal input 267 – start-up and shut-down load	25/03/15

- 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.
- 2.1.3 For activity A1 (LCP 254) referenced in schedule 1, table 1.1.1; without prejudice to condition 2.1.1, the activities shall be operated in accordance with the “Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines” revision 1 dated February 2015 or any later version unless otherwise agreed in writing by the Environment Agency.
- 2.1.4 For activity A1 (LCP 254) referenced in schedule 1, table 1.1.1; the end of the start up period and the start of the shutdown period shall conform to the specifications set out in Schedule 1, tables 2.1.1 and 2.1.2.

<b>Table 2.1.2 Start-up and Shut-down thresholds</b>		
<b>Emission Point and Unit Reference</b>	<b>“Minimum start up load” When two of the criteria listed below for the LCP or unit have been met.</b>	<b>“Minimum shut-down load” When two of the criteria listed below for the LCP or unit have been met.</b>
A36 <b>LCP 254</b> Boilers	Oxygen – 5% Flue Gas Temperature – Pre-Economiser 250°C...Post- Economiser and to Stack 150°C Steam Pressure – 14 Barg Gas Flow Rate – 15% of Flow Capacity Exit Steam Temperature – 235°C	Oxygen – 5% Flue Gas Temperature – Pre-Economiser 250°C...Post- Economiser and to Stack 150°C Steam Pressure – 14 Barg Gas Flow Rate – 15% of Flow Capacity Exit Steam Temperature – 235°C

## 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.

<b>Table 2.2.1 Emission points to air</b>		
<b>Emission point reference or description</b>	<b>Source</b>	<b>Location of emission point</b>
A1	Silicate Furnace Stack	Point A1 on document reference IPPC B1.3.1c
A2	A24 Plant Ring Drier via bag filter	Point A2 on document reference IPPC B1.3.1c
A3a and A3b	A24 Plant Product Silos via bag filter	Point A3 on document reference IPPC B1.3.1c
A4	Precips Plant Stack via bag filter and wet scrubber	Point A4 on document reference IPPC B1.3.1c
A5	Precips Air Microniser Product Collector via cassette filter	Point A5 on document reference IPPC B1.3.1c
A6	Gels Plant Ring Drier via bag filter	Point A6 on document reference IPPC B1.3.1c
A7	Steam Microniser Product Collector via filter bag	Point A7 on document reference IPPC B1.3.1c

<b>Table 2.2.1 Emission points to air</b>		
<b>Emission point reference or description</b>	<b>Source</b>	<b>Location of emission point</b>
A8	Steam Microniser Hot Collector 1 via filter bag	Point A8 on document reference IPPC B1.3.1c
A9	Steam Microniser Hot Collector 2 via filter bag	Point A9 on document reference IPPC B1.3.1c
A10	Steam Microniser Hot Collector 3 via filter bag	Point A10 on document reference IPPC B1.3.1c
A11	Gels Plant Rotary Drier via filter bag	Point A11 on document reference IPPC B1.3.1c
A12	No 3 Air Microniser Product Collector via filter bag	Point A12 on document reference IPPC B1.3.1c
A13	No 1 Air Microniser Product Collector via filter bag	Point A13 on document reference IPPC B1.3.1c
A14	Gels Plant Spray Drier via filter bag	Point A14 on document reference IPPC B1.3.1c
A15	Gels Plant Flash Drier via filter bag and absolute filter	Point A15 on document reference IPPC B1.3.1c
A16	Vacumax via filter bag	Point A16 on document reference IPPC B1.3.1c
A18	Lucilite Mill No 1 via filter bag	Point A18 on document reference IPPC B1.3.1c
A19	Lucilite Mill No 2 via filter bag	Point A19 on document reference IPPC B1.3.1c
A29	WDM26 via condenser	Point A29 on document reference IPPC B1.3.1c
A30	WDM27 via condenser	Point A30 on document reference IPPC B1.3.1c
A31	WDM15 Vent via condenser	Point A31 on document reference IPPC B1.3.1c
A32	WDM14 Vent via condenser	Point A32 on document reference IPPC B1.3.1c
A33	WDM14 Solvent recovery tank	Point A33 on document reference IPPC B1.3.1c
A34	Complex Pot Vent via condenser	Point A34 on document reference IPPC B1.3.1c
A35	Pilot Plant Ring Drier via bag filter	Point A35 on document reference IPPC B1.3.1c
A36	<b>LCP 254 - Boiler Plant Stack</b>	Point A36 on document reference IPPC B1.3.1c

2.2.1.3 The limits for emissions to air for the parameters and emission points set out in Table 2.2.2 shall not be exceeded.

<b>Table 2.2.2 Emission limits to air and monitoring</b>						
<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b> Refer to Table 2.2.1 above	<b>Limit (including unit)- these limits do not apply during start up or shut down. (Note 1)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A1	Particulates		250 mg/m <sup>3</sup>	Note 2	Continuous	BS ISO 10155
A1	Oxides of Nitrogen as nitrogen dioxide		2700 mg/m <sup>3</sup>	Note 2	Continuous	ISO 10849
A2	Particulates		20 mg/m <sup>3</sup>	hourly average	Annual	BS EN 13284-1
A4	Particulates		20 mg/m <sup>3</sup>	hourly average	Annual	BS EN 13284-1
A6	Particulates		20 mg/m <sup>3</sup>	hourly average	Annual	BS EN 13284-1
A14	Particulates		20 mg/m <sup>3</sup>	hourly average	Annual	BS EN 13284-1
<b>LCP 254 - Boiler plant fired on natural gas</b>						
A36	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		150 mg/m <sup>3</sup>	hourly average	At least every 6 months	BS EN 14792
A36	Carbon Monoxide		110 mg/m <sup>3</sup>	hourly average	At least every 6 months	BS EN 15058
A36	Sulphur Dioxide mg/m <sup>3</sup>		35 mg/m <sup>3</sup>	-	At least every 6 months	Concentration by calculation as agreed in writing by the Environment Agency

<b>Table 2.2.2 Emission limits to air and monitoring</b>						
<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b> Refer to Table 2.2.1 above	<b>Limit (including unit)- these limits do not apply during start up or shut down. (Note 1)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A36	Dust mg/m <sup>3</sup>		5 mg/m <sup>3</sup>	-	Every 6 months	Concentration by calculation as agreed in writing by the Environment Agency
A36	Oxygen		-	-	Periodic As appropriate to reference	BS EN 14789
A36	Water Vapour		-	-	Periodic As appropriate to reference	BS EN 14790
A36	Stack gas volume flow		-	-	-	BS EN 16911 & TGN M2
A36	As required by the Method Implementation Document for BS EN 15259		-	-	Pre-operation and when there is a significant operational change	BS EN 15259

Note 1: See Section 6 for reference conditions

Note 2: Determined on 15 minute averages, compliance shall be achieved if 95% of the 15 minute averages are below the specified limit.

2.2.1.4 Total emissions to air from LCP 254 emission point set out in Table 2.2.1 in any year of a substance listed in Table 2.2.3 shall not exceed the relevant limit in that Table.

<b>Table 2.2.3 Annual limits to air (excluding start up and shut down).</b>				
<b>Substance</b>	<b>Medium</b>	<b>Limit (including unit)</b>		<b>Emission Points</b>
Oxides of nitrogen	Air	Assessment year	LCP 254 TNP Limit	A36 (Boiler plant stack)
		01/01/16 and subsequent years until 31/12/19	Emission allowance figure shown in the TNP Register as at 30 April the following year	
		01/01/20-30/06/20		

### **Monitoring for the purposes of the Industrial Emissions Directive Chapter III**

2.2.1.5 All monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive.

2.2.1.6 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with the Environment Agency.

### **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.

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.

<b>Table 2.2.4 Emission points to water</b>		
<b>Emission point reference or description - (identified on drawing number 40959-2)</b>	<b>Source</b>	<b>Receiving water</b>
W1	Precips Effluent Treatment Plant	River Mersey
W2	Gels Effluent Treatment Plant	River Mersey
W3	Process & Cooling Water from Silicate Plant & A24 Plants	River Mersey
W4	Uncontaminated rainwater from Outfall 8	River Mersey
W5	Uncontaminated rainwater from Outfall G12	River Mersey
W6	Uncontaminated rainwater from Outfall G31	River Mersey
W7	Uncontaminated rainwater from Outfall G40	River Mersey

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.

<b>Table 2.2.5 Emission limits to water and monitoring requirements</b>						
<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b> Refer to Table 2.2.4 above	<b>Limit (incl. unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
W1	Settleable Solids		150 mg/l	Weekly arithmetic mean average of daily sample results	Daily results mean averaged for weekly composite figure	BS EN 872
W1	pH		5-9	Weekly composite sample	Weekly	BS 6068-2.50:1995 ISO 10523:1994

<b>Table 2.2.5 Emission limits to water and monitoring requirements</b>						
<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b> Refer to Table 2.2.4 above	<b>Limit (incl. unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
W1	Temperature		60°C	Note 1	Continuous	
W1	Flow		Total 4000 m <sup>3</sup> /day	Note 2	Continuous	SCA Blue Book 143 General Principles of Sampling Water and Associated Materials; Estimation of Flow and Load ISBN 01775 2364X
W2	Chemical oxygen demand		125 mg/l	Weekly composite sample	Weekly	BS 6068:2002
W2	Ammonia		10 mg/l	Weekly composite sample	Weekly	
W2	pH		5.5– 10	Weekly composite sample	Weekly	BS 6068-2.50:1995
W2	Temperature		60°C	Note 1	Continuous	
W2	Flow		5300 m <sup>3</sup> /day		Continuous	SCA Estimation of Flow & Load, ISBN 011752364X
W3	pH		6 – 9	Weekly composite sample	Weekly	BS 6068-2.50:1995
W3	Temperature		40°C	Note 3	Continuous	
W3	Flow		17,500m <sup>3</sup> /day		Continuous	Calculation from river pump run hours

Note 1: Determined on 15 minute averages, compliance shall be achieved if 95% of the total volume flow is below the limit of 60°C. Compliance shall not be achieved if any reading is greater than 65°C.



Note 2: A limit of 5500m<sup>3</sup>/day shall apply during the months of January, February, June, July, November and December.

Note 3: Compliance shall be achieved if 95% of the total daily volume flow is below the limit of 40°C.

2.2.2.6 Total emissions to water in any year of a substance listed in Table 2.2.6 shall not exceed the relevant limit in that Table.

<b>Table 2.2.6 Annual emission limits</b>	
<b>Substance</b>	<b>Limit - kg</b>
Mercury	7 kg (Compliance based on Mass Balance Calculation)
Cadmium	1 kg (Compliance based on Mass Balance Calculation)

## **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.

<b>Table 2.2.7 Emission points to sewer</b>		
<b>Emission point reference or description - (identified on drawing number 40959-2)</b>	<b>Source</b>	<b>Sewer</b>
S1	Silicate Plant tanker washing	United Utilities
S2	A24 plant process effluent	United Utilities
S3	Steam raising process effluent from boiler plant	United Utilities
S4	Gels plant EP50 process effluent	United Utilities
S5	FPA cooling coils and process effluent	United Utilities
S6	South bank surface water run off	United Utilities
S11	Wash down from aluminium trihydrate store	United Utilities

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 and the supporting Appendices 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 No condition applies.

## **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 and the supporting Appendices 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 and the supporting Appendices 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.

<b>Table 2.10.1 Other monitoring requirements</b>				
<b>Emission point reference or source or description of point of measurement</b>	<b>Substance or parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring method</b>	<b>Other specifications</b>
W1	Suspended solids	Weekly analysis of weekly composite sample	BS EN 872:1996	
W2	Suspended solids	Weekly analysis of weekly composite sample	BS EN 872:1996	

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.
- 2.10.11 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.



## **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.
- 2.11.5 The operator shall inform the Environment Agency in writing of the closure of any LCP within 28 days of the date of closure.

## **2.12 Multiple operator installations**

- 2.12.1 This is not a multi-operator installation.

## **2.13 Transfer to effluent treatment plant**

- 2.13.1 No controls to effluent treatment plant are controlled under this part of the permit.
- 2.13.2 No condition applies.

## 3 Records

- 3.1 The Operator shall ensure that all records required to be made by this Permit and any other records made by it in relation to the operation of the Permitted Installation shall:-
- 3.1.1 be made available for inspection by the Agency at any reasonable time;
  - 3.1.2 be supplied to the Agency on demand and without charge;
  - 3.1.3 be legible;
  - 3.1.4 be made as soon as reasonably practicable;
  - 3.1.5 indicate any amendments which have been made and shall include the original record wherever possible;
  - 3.1.6 be retained at the Permitted Installation, or other location agreed by the Agency in writing, for a minimum period of 4 years from the date when the records were made, unless otherwise agreed in writing; and
  - 3.1.7 where they concern the condition of the site of the Installation or are related to the implementation of the Site Protection and Monitoring Programme, be kept at the Permitted Installation, or other location agreed by the Agency in writing, until all parts of the Permit have been surrendered.

## 4 Reporting

- 4.1.1 All reports and written and or oral notifications required by this Permit and notifications required by Regulation 16 of the PPC Regulations shall be made or sent to the Agency using the contact details notified in writing to the Operator by the Agency.
- 4.1.2 The Operator shall, unless otherwise agreed in writing, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:-
- 4.1.2.1 in respect of the parameters and emission points specified in Table S2 to Schedule 2;
  - 4.1.2.2 for the reporting periods specified in Table S2 to Schedule 2 and using the forms specified in Table S3 to Schedule 3;
  - 4.1.2.3 giving the information from such results and assessments as may be required by the forms specified in those Tables; and
  - 4.1.2.4 to the Agency within 28 days of the end of the reporting period.
- 4.1.3 The Operator shall submit to the Agency a report on the performance of the Permitted Installation over the previous year, by 31 January each year, providing the information listed in Tables S4.1 and S4.2 of Schedule 4, assessed at any frequency specified therein, and using the form specified in Table S3 to Schedule 3.
- 4.1.4 The Operator shall review fugitive emissions, having regard to the application of Best Available Techniques, on an annual basis, or such other period as shall be agreed in writing by the Agency, and a summary report on this review shall be sent to the Agency detailing such releases and the measures taken to reduce them within 3 months of the end of such period.
- 4.1.5 Where the Operator has a formal environmental management system applying to the Permitted Installation which encompasses annual improvement targets the Operator shall, not later than 31 January in each year, provide a summary report of the previous year's progress against such targets.
- 4.1.6 The Operator shall, within 6 months of receipt of written notice from the Agency, submit to the Agency a report assessing whether all appropriate preventive measures continue to be taken against pollution, in particular through the application of the best available techniques, at the installation. The report shall consider any relevant published technical guidance current at the time of the notice which is either supplied with or referred to in the notice, and shall assess the costs and benefits of applying techniques described in that guidance, or otherwise identified by the Operator, that may provide environmental improvement.
- 4.1.7 The Operator shall, within two months of the date of this permit, submit a detailed Site Protection and Monitoring Programme, in accordance with and using the appropriate template format given in the Land Protection Guidance. The Operator shall implement and maintain the Site Protection and Monitoring Programme (SPMP) submitted under this condition, and shall carry out regular reviews of it at a minimum frequency of every 2 years. The results of such reviews and any changes made to the SPMP shall be reported to the Agency within 1 month of the review or change.

- 4.1.8 For activity A1 (LCP 254) referenced in schedule 1, table 1.1.1; unless otherwise agreed in writing with the Environment Agency, within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form IED RTA1, listed in table S3, the information specified on the form relating to the site's mass emissions.

## 5 Notifications

### 5.1.1 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
  - (i) inform the Environment Agency,
  - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
  - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
  - (i) inform the Environment Agency, and
  - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

5.1.2 Any information provided under condition 5.1.1 (a)(i), 5.1.1 (b)(i) where the information relates to the breach of a condition specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in 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);
  - 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 water or 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.

*“base load”* means: (i) as a mode of operation, operating for >4000hrs pa; and (ii) as a load, the maximum load under ISO conditions that can be sustained continuously, i.e. maximum continuous rating.

*“BAT”* means best available techniques means the most effective and advanced stage of development of activities and their methods of operation which indicates the practical suitability of particular techniques to prevent and where that is not practicable to reduce emissions and the impact on the environment as a whole. For these purposes: *“available techniques”* means *“those techniques which have been developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the cost and advantages, whether or not the techniques are used or produced inside the United Kingdom, as long as they are reasonably accessible to the operator”*; *“best”* means *“in relation to techniques, the most effective in achieving a high general level of protection of the environment as a whole”* and *“techniques”* *“includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned”*. In addition, Schedule 2 of the PPC Regulations has effect in relation to the determination of BAT.

*“Energy efficiency”* the annual net plant energy efficiency means the value calculated from the operational data collected over the year.

*“EP Regulations”* means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

*“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.

*“Industrial Emissions Directive”* means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions.

*“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.

*“large combustion plant”* or *“LCP”* is a combustion plant or group of combustion plants discharging waste gases through a common windshield or stack, where the total thermal

input is 50 MW or more, based on net calorific value. The calculation of thermal input, excludes individual combustion plants with a rated thermal input below 15MW.

“*MCERTS*” means the Environment Agency’s Monitoring Certification Scheme.

“MCR” means maximum continuous rating.

“MSDL” means minimum shut-down load as defined in Implementing Decision 2012/249/EU.

“MSUL” means minimum start-up load as defined in Implementing Decision 2012/249/EU.

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

“Natural gas” means naturally occurring methane with no more than 20% by volume of inert or other constituents.

“ncv” means net calorific value.

“operational hours” are whole hours commencing from the first unit ending start up and ending when the last unit commences shut down.

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

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

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

“*Staff*” includes employees, directors or other officers of the Operator, and any other person under the Operator’s direct or indirect control, including contractors.

“TNP Register” means the register maintained by the Environment Agency in accordance with regulation 4 of the Large Combustion Plants (Transitional National Plan) Regulations 2015 SI2015 No.1973.

“*Year*” means calendar year ending 31 December.

“*Quarterly*” for reporting/sampling means after/during each 3 month period, January to March; April to June; July to September and October to December and, when sampling, with at least 4 weeks between each sampling date.

“*6 monthly*” for reporting/sampling means after/during each 6 month period, January to June; July to December and, when sampling, with at least 8 weeks between each sampling date.

“*Annual*” for reporting/sampling means after/during each year and, when sampling, with at least 4 months between each sampling date.

“*Daily*” means, for sampling purposes, a 24 hour period.

“*Week*” means, for sampling purposes, a period of 7 days.

“*Daily composite sample*” means a representative sample obtained by periodically taking a sample from the effluent over a day.

“*Weekly composite sample*” means a representative sample obtained by periodically taking a sample from the effluent over a week.



“*Hourly average*” means the average value from continuous monitoring over each 60 minute period.

“*Monthly average*” means the average of all weekly results obtained during a calendar month.

“*Class A or Class B*” in relation to volatile organic compounds is as defined in Agency Guidance for Speciality Organic Chemicals S4.02, Appendix 3.

“*Biochemical Oxygen Demand*” means biochemical oxygen demand measured after 5 days at 20°C with nitrification suppressed by the addition of allyl-thiourea.

“*Chemical Oxygen Demand*” means chemical oxygen demand from a settled sample determined in the presence of acidified potassium dichromate.

“*Suspended Solids*” means those suspended solids measured after drying at 105°C.

“*mg/m<sup>3</sup>*” means milligramme per cubic metre.

“*g/s*” means gramme per second.

“*kg/h*” means kilogramme per hour.

“*µg/l*” means microgramme per litre.

“*mg/l*” means milligramme per litre.

“*g/l*” means gramme per litre.

“*kg*” means kilogramme.

“*t*” means tonne.

“*MWh*” means megawatt hour.

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 emission point A1, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 8% dry for liquid and gaseous 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	EPR/RP3233GW
Name of Operator	PQ Silicas UK Limited
Location of Installation	4 Liverpool Road Bank Quay Warrington Cheshire WA5 1AB
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 Permitted Installation in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

\* authorised to sign on behalf of PQ Silicas UK Limited

## Schedule 2 - Reporting of monitoring data

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

<b>Table S2 Reporting of monitoring data</b>			
<b>Parameter</b>	<b>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Particulates mg/m <sup>3</sup>	A1, A2, A4, A6, A14	Annual	01/01/06
Oxides of Nitrogen mg/m <sup>3</sup>	A1	Annual	01/01/06
Oxides of nitrogen mg/m <sup>3</sup>	A36	Every 6 months	1 January, 1 July
Carbon Monoxide mg/m <sup>3</sup>	A36	Every 6 months	1 January, 1 July
Sulphur Dioxide mg/m <sup>3</sup>	A36	Every 6 months	1 January, 1 July
Dust mg/m <sup>3</sup>	A36	Every 6 months	1 January, 1 July
Chemical oxygen demand mg/l	W2	Quarterly	01/01/06
Settleable solids mg/l	W1	Quarterly	01/01/06
pH	W1, W2 & W3	Quarterly	01/01/06
Temperature	W1, W2 & W3	Quarterly	01/01/06
Ammonia mg/l	W2	Quarterly	01/01/06
Flow	W1,W2,W3	Quarterly	01/01/06
Water usage	Permitted Installation	Annually	01/01/06
Energy usage	Permitted Installation	Annually	01/01/06
Waste disposal and/or recovery	Permitted Installation	Annually	01/01/06

## Schedule 3 - Forms to be used

<b>Table S3 Reporting forms</b>				
<b>Media/ parameter</b>	<b>Reporting format</b>	<b>Starting Point</b>	<b>Agency recipient</b>	<b>Date of form</b>
LCP	Form IED HR1 – operating hours	01/01/16	National	31/12/15
Air	Form IED AR1 – SO <sub>2</sub> , NO <sub>x</sub> and dust mass emission and energy	01/01/16	National	31/12/15
Air	Form IED RTA1 –TNP quarterly emissions summary log (NO <sub>x</sub> only)	01/01/16	National	31/12/15
Air	Form IED PM1 - discontinuous monitoring and load	01/01/16	Area Office	31/12/15
Air	A1	-	Area Office	15/06/06
Water	Form W1 or other form as agreed in writing by the Environment Agency	-	Area Office	15/06/06
Water usage	Form WU1 or other form as agreed in writing by the Environment Agency	-	Area Office	15/06/06
Energy	E1	-	Area Office	15/06/06
Waste production	R1	-	Area Office	15/06/06
Other performance indicators	Form PI1 or other form as agreed in writing by the Environment Agency	-	Area Office	15/06/06

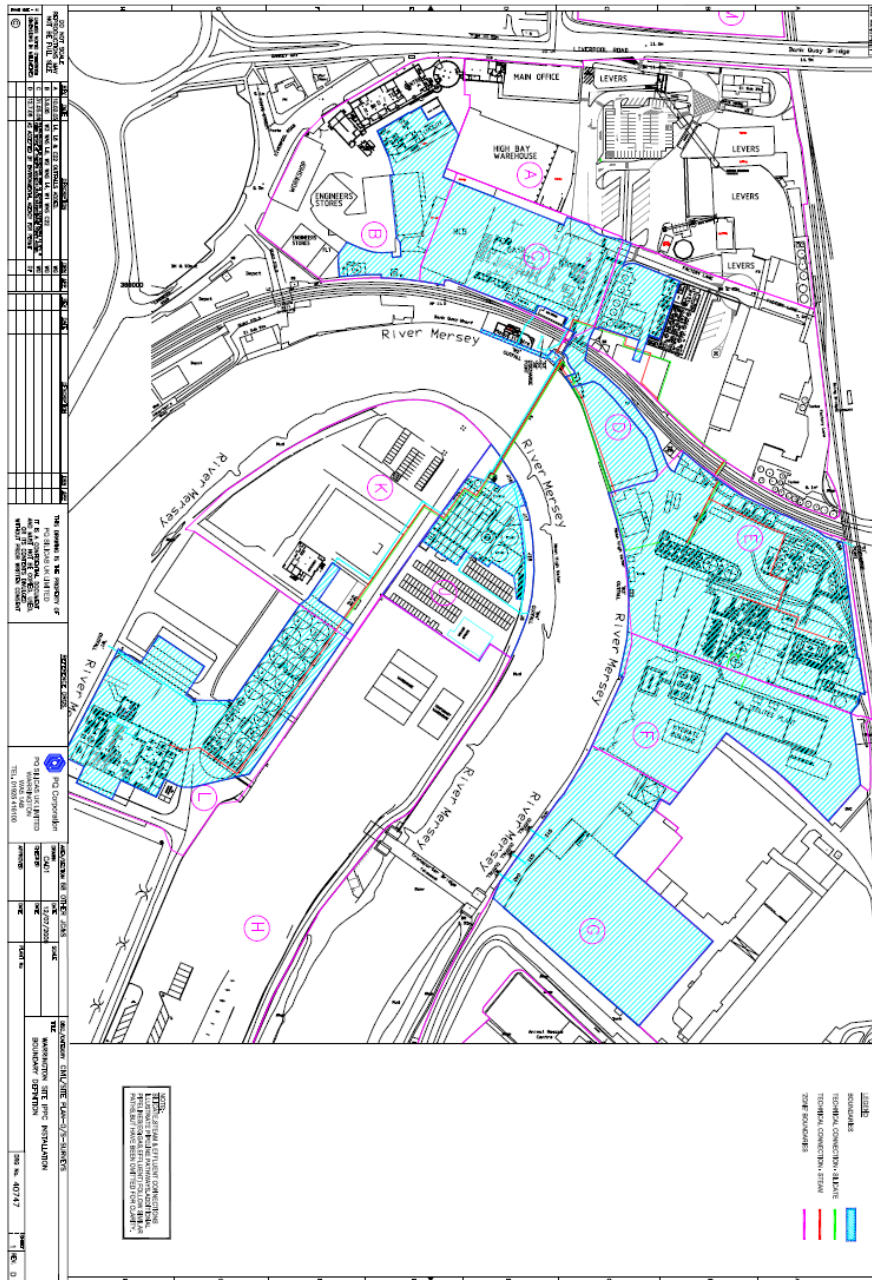
## Schedule 4 - Reporting of performance data

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.

<b>Table S4.1: Annual production/treatment</b>	
<b>Parameter</b>	<b>Units</b>
Production of sodium silicate and other silicates	tonnes
Production of non-crystalline (hydrated amorphous) silicon dioxides	tonnes
Production of crystalline aluminosilicates (zeolites)	tonnes

<b>Table S4.2 Chapter III Performance parameters for reporting to DEFRA and other Performance parameters</b>		
<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Thermal Input Capacity for LCP 254	Annually	MW
Annual Fuel Usage for LCP 254	Annually	TJ
Total Emissions to Air of NO <sub>x</sub> for LCP 254	Annually	t
Total Emissions to Air of SO <sub>2</sub> for LCP 254	Annually	t
Total Emissions to Air of dust for LCP 254	Annually	t
Operating hours for LCP 254	Annually	hours
Energy consumption	Annually	MWh/t
Water consumption	Annually	m <sup>3</sup> /t
Waste production	Annually	t/t

# Schedule 5 - Site plan



END OF PERMIT