Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

PPG Industries (UK) Limited

PPG Fibre Glass Wigan
Leigh Road
Hindley Green
Wigan
WN2 4XG

Variation application number

EPR/BR5213IG/V005

Permit number

EPR/BR5213IG

PPG Fibre Glass Wigan
Permit number EPR/BR5213IG

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. Only the variations specified in schedule 1 are subject to a right of appeal.

Purpose of this Variation (includes Technical Derogation)

To make changes to the variation issued 15 May 2015, to include a Technical Derogation supporting a time limited delay in meeting the new Industrial Emission Directive (IED) BAT AEL's (Best Available Technique Associated Emission Levels) to allow for the emissions control technology to be installed on the furnaces during their respective scheduled furnace rebuilds.

- Time limited derogation from the BAT AEL's for dust and hydrogen fluoride (HF) from melting furnace as set out in table 22 of BAT conclusion 32 and table 25 of BAT conclusion 35 of document 2012/134/EU.
- The date for BAT AEL compliance was 8 March 2016. The derogation request relates to emissions from two furnaces. The derogation request for the first furnace (Furnace 501) is time limited until 1 January 2019. The derogation request for the second furnace (Furnace 502) is time limited until 1 January 2021.
- The basis of the request is derived from the technical characteristics of the installation pursuant to article 15(4)(b) of the IED.

Some changes to monitoring frequencies and methods are also included for several emission points to air.

Non-Technical Summary

The main purpose of the activity at the installation is the manufacture of continuous filament glass fibre.

The glass filament produced by the plant is manufactured in a continuous form, is known as 'E glass', and has specific properties such as low electrical conductivity and high strength. The filaments have a diameter of a few ten thousandths of a millimetre. The process operates 24 hours per day and 365 days per year with an annual melting capacity of 84,250 tonnes of glass. The principal use of the products is in plastics reinforcement for a wide range of industrial, automotive and energy applications.

The main plant components comprise storage silos for raw materials, two furnaces for melting the materials to form the glass, filament drawing bushings, binder application equipment and dryers.

The process involves the introduction of several raw materials comprising finely ground silica, calcium and alumina bearing minerals from selected sites dependent on quality and level of trace elements. Small quantities of other minerals that give the glass its unique properties are also used in the process.

The finely ground materials are transported to the site by tanker and stored in large silos. Bag filters on the silos protect the environment from the release of dust entrained in the air displaced when the silos are filled. From the silos, the materials are transported pneumatically to a mixing area where they are weighed to an exact formula to provide the desired molten glass composition. The batch of mixed raw materials is then transported to the furnace for melting.

There are three distinct areas to the furnace: melter, refiner and forehearth.

The melting process converts the raw materials to glass in a furnace fuelled with oxygen enriched natural gas ("oxy-fuel"). Temperatures in the melter can reach about 1,600°C. Should an interruption in natural gas take place, the furnace can be fired using gas oil (diesel). During the melting process, water and carbon dioxide are removed and the resultant oxides melt and blend together. Emissions to air from the furnaces are directed via two stacks, furnace 501 at 36m and furnace 502 at 47m.

From the melter, the molten glass passes into the refining stage where it is cooled to approximately 1,250°C and residual gas bubbles are removed. The molten glass then passes to the forehearth section where it is drawn out of the furnace through bushings as a fibre. The bushings are large metal plates containing many hundreds of nozzles inserted at multiple locations along the base of the forehearth.

As filaments are drawn from the bushings they are coated with a binder solution to impart properties to the glass fibre that ease subsequent handling, reduce wastage and provide compatibility with the plastic products they are to be used with. The binder solution comprises mainly water. Inevitably, some binder solution falls from the glass into the furnace basement where it is collected, directed to an on-site treatment facility and discharged to public sewer.

The coated filaments are gathered and consolidated into a strand which is then wound onto a rotating cardboard tube. Once winding is complete, the resulting product is referred to as a package or 'roving' and the process is referred to as 'fibre forming'.

From the fibre forming area the packages are transported to drying ovens to remove the residual water of the binder application. The drying area consists of several ovens which use natural gas firing or radio-frequency to drive off the water. In removing the water, a small amount of the binder substances are also removed. These substances are volatile organic compounds (VOCs) and small amounts are released to air.

Once dried, the glass fibre strands are then packaged, transported to the warehouse and then sold.

Water and energy use on the site is kept to a minimum via a strictly controlled efficiency regime.

The Operator currently uses a batch formulation known as the Environmentally Friendly Batch (EFB). This technique is utilised on both furnaces to reduce the quantities of boron particles and fluoride emissions from the plant. Alternative batch formulations and use of emission control techniques such as lime injection scrubbers form part of the plans to further reduce the quantities of emissions from the site.

Releases

Air

Gaseous reaction and combustion products are released to air via the main furnace stacks. The main pollutants are oxides of nitrogen, sulphur dioxide, fluorides and particulate matter. There are smaller emissions from stacks at the furnace forehearths. Oxy-fuel firing has a major influence on the reduction of oxides of nitrogen, as there is less atmospheric nitrogen available for conversion. With a reduced mass flow of combustion gases, there will be a corresponding reduction in particulate emission.

VOCs are released via the oven vents. Careful selection of low VOC binders keeps these emissions low.

Water

No substances prescribed for water are used in the activities carried out in the installation.

Water is used throughout the process for cooling, air washing and binder preparation. Waste water is eventually discharged to public sewer.

Surface water from roofs, roads and concrete areas enters drains and flows to two concrete outfall weirs and then via Brookside Brook to Hey Brook and Pennington Flash.

Energy Use

This installation is subject to a climate change levy agreement and has a Greenhouse Gas Permit.

Accident Prevention

The Operator's Emergency Procedures Manual adequately addresses the identification, reduction and mitigation of the risk of accidents potentially affecting the environment.

Decommissioning

Fast turnaround of rebuilding furnaces is critical for the maintenance of production. Consequently the consideration of decommissioning is important in the design of new furnaces and such plans are kept up to date.

Habitats

The use of oxy-fuel firing and EFB formulations has historically reduced the emissions from the installation significantly. This, together with the commitment to further reduce emissions is expected to have no effect on the nearby 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.

Status log of the permit		
Description	**Date**	**Comments**
Application received EPR/BR2131IG/A001	Duly made 29/07/02	Application for manufacture of continuous monofilament glass fibre; Section 3.3 A(1)(a)
Additional information received	12/12/02	Schedule 4 Notice 01
Permit determined EPR/BR5213IG	01/04/03	Original permit issued to PPG Industries (UK) Limited
Partial Surrender application EPR/ BR5213IG/V002	Duly Made 18/08/04	Issued 25/08/04
Variation application EPR/BR5213IG/V003	Duly made 02/10/12	Application to vary the permit.
Variation determined EPR/BR5213IG/V003	24/10/12	Varied permit issued.
Regulation 60 Notice issued	19/12/13	Based on BAT Conclusions for the Glass industry sector published 8 March 2012
Regulation 60 Notice Response	31/07/14	
Additional Response to Regulation 60 Notice	24/10/14 05/12/14 19/12/14	
Environment Agency Initiated Variation determined EPR/BR5213IG/V004	15/05/15	Varied and consolidated permit issued in modern condition format EPR/BR5213IG.
Variation application EPR/BR5213IG/V005	Duly made 23/03/16	Application to derogate from dust and HF BAT AEL's and to include changes to monitoring frequencies and methods
Additional information received	24/03/16	Updated derogation document 47075514/LERP0001, dated March 2016
Additional information received	10/05/16	Health & Safety issues – hot tap installation
Request for further information dated 09/05/16	06/06/16	Updated air quality assessment
Additional information received	13/07/16	Emissions data and proposed monitoring
DRAFT Decision EPR/BR5213IG/V005	24/08/16	Varied and consolidated DRAFT permit

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/BR5213IG

Issued to

PPG Industries (UK) Limited ("the operator")

whose registered office is

PO BOX 162
Needham Road
Stowmarket
Suffolk
IP14 2ZR

company registration number **02110620**

to operate a regulated facility at

PPG Fibre Glass Wigan
Leigh Road
Hindley Green
Wigan
WN2 4XG

to the extent set out in the schedules.

The notice shall take effect from [DD/MM/YYYY]

Name	Date
[name of authorised person] **Type name, signature not needed**	**[DD/MM/YYYY]**

Authorised on behalf of the Environment Agency

Schedule 1

The following conditions were varied as a result of the application made by the Operator:

Condition 2.3.1 refers to Table S1.2, *Operating techniques*, which is amended to include technical standards for this variation.

Condition 2.4.1 refers to Table S1.3, *Improvement programme requirements*, which is amended to add conditions, remove completed conditions and to amend IC7 (renumbered to IC1).

Condition 3.1.1 refers to Table S3.1, *Point source emissions to air*, which is amended to change emission limits and monitoring requirements.

Condition 3.1.3 for background concentrations in water emissions is deleted, included in error. Condition 3.1.4 renumbered to 3.1.3.

Condition 3.5.1 is amended to include process monitoring.

Conditions 3.5.1 refers to Table S3.4, *Process monitoring*, which is added.

Conditions 4.2.2 and 4.2.3 refer to Table S4.3, *Reporting forms*, which is amended to include the date of the forms.

Condition 4.2.3 refers to Table S4.1, *Reporting of monitoring data*, which is amended to change reporting requirements.

Condition 4.4.1 refers to Schedule 6, *Interpretation*, which is amended to remove “background concentration”, refer to condition 3.1.3 above.

Condition 4.4.2 amended in accordance with the IED to change ‘without delay’ to ‘immediately’.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number

EPR/BR5213IG

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BR5213IG/V005 authorising,

PPG Industries (UK) Limited ("the operator"),

whose registered office is

PO BOX 162
Needham Road
Stowmarket
Suffolk
IP14 2ZR

company registration number **02110620**

to operate an installation at

PPG Fibre Glass Wigan
Leigh Road
Hindley Green
Wigan
WN2 4XG

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

Name	Date
[name of authorised person]	**[DD/MM/YYYY]**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

1.2.1 The operator shall:

(a) take appropriate measures to ensure that energy is used efficiently in the activities;

(b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

1.3.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan , and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2 and S3.3.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 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.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) point source emissions specified in tables S3.1, S3.2 and S3.3;

(b) process monitoring specified in table S3.4.

3.5.2 The operator shall maintain records of all monitoring required by this permit including 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.

3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.

3.5.4 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.1; the Continuous Emission Monitors shall be used such that;

(a) the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed the following percentages:

- Carbon monoxide 10%
- Sulphur dioxide 20%
- Oxides of nitrogen (NO & NO2 expressed as NO2) 20%
- Particulate matter 30%
- Total organic carbon (TOC) 30%
- Hydrogen chloride 40%

(b) valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods) from the measured values after having subtracted the value of the confidence intervals in condition 3.5.4(a);

(c) where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete half-hour period, the half-hourly average shall in any case be considered valid if measurements are available for a minimum of 20 minutes during the half-hour period. The number of half-hourly averages so validated shall not exceed 5 per day;

(d) daily average values shall be determined as the average of all the valid half-hourly average values within a calendar day. The daily average value shall be considered valid if no more than five half-hourly average values in any day have been determined not to be valid;

(e) no more than ten daily average values per year shall be determined not to be valid.

3.5.5 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.2, and S3.3 unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the performance parameters set out in schedule 4 table S4.2 using the forms specified in table S4.3 of that schedule.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.3 ; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.3 Notifications

4.3.1 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.

4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit 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.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.3.7 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:

(a) a decision by the Secretary of State not to re-certify the agreement;

(b) a decision by either the operator or the Secretary of State to terminate the agreement; and

(c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made “immediately”, in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
A1	Section 3.3 Part A(1)(a) Manufacturing glass fibre in plant with a melting capacity exceeding 20 tonnes per day.	Manufacture of continuous monofilament glass fibre; The operation of two melting furnaces and associated equipment comprising raw material batch hoppers, burners, oxygen storage, binder preparation and storage, fibre drawing and coating.	From the input to the feed systems (batch hoppers, burners, oxygen storage and binder storage) to the output of the glass coating system. Oxygen manufacture is excluded.
	Directly Associated Activity		
A2		Bulk raw material and diesel storage	From point of collection on site to the input of the batch hoppers or burners.
A3		Product drying in various ovens	From coating system to input of product storage. Product storage is excluded.
A4		Water discharges to trade effluent sewers	From installation to point of entry to sewer.
A5		Water discharges to controlled waters	From installation to point of entry to controlled waters.
A6		Waste handling	From installation to point of exit from site.
A7		Cryogenic Oxygen Plant	From intake of air to supply of oxygen to furnace.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application EPR/BR521IG/A001	The response to questions 2.3 given in section 2.3 of the application	29/07/02
Response to Schedule 4 Part 1 Notice 01	Response to items 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11	12/12/02
Application EPR/BR5213IG/V003	Part C2, response to questions 2b	03/10/12
Application EPR/BR5213IG/V003	Supporting information provided within 'PPG Application to vary permit BR5213IG' 1.1 Non-Technical summary	02/10/12
Regulation 60 Notice Response	Full Submission	31/07/14
Additional Response to Regulation 60 Notice	E-mail response	24/10/14
Additional Response to Regulation 60 Notice	E-mail response	05/12/14
Additional Response to Regulation 60 Notice	E-mail response	19/12/14
Application EPR/BR5213IG/V005	Response to question 3a (Technical Standards) given in Part C3 of the application form	23/03/16

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC1	The Operator shall submit a written summary report to the Environment Agency to confirm that the performance of Continuous Emission Monitoring systems for Carbon Monoxide, Dust and Nitrogen Dioxide as specified in Tables S3.1 and S3.4 comply with the following quality assurance principles of BS EN 14181: functional tests with calibrated gases or surrogates, and verification with parallel tests using a standard reference method.	30/06/19 Furnace 501 30/06/21 Furnace 502
IC2	The Operator shall submit, for approval by the Environment Agency, a report setting out progress to achieving the BAT conclusion AEL's where a derogation has been applied for and granted. The report shall include, but not be limited to, the following: • Current performance against the BAT conclusion AEL's. • Methodology for meeting the BAT AEL's. • Associated targets / timelines for reaching compliance by 01/01/19 at furnace 501 and 01/01/21 at furnace 502 for emissions of dust and HF at emission points A1 (furnace 501) and A2 (furnace 502) defined in table S3.1 of this permit. • Any alterations to the initial plan – for progress reports The report shall address BAT conclusions 32 and 35. The Operator shall submit reports on progress with the approved compliance plan on a six monthly frequency specified by this condition.	Initial Report 01/12/16 Progress reports by 01/06/17 01/12/17 01/06/18 01/12/18 01/06/19 01/12/19 01/06/20 01/12/20

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
Fuel Oil	Less than 0.1% sulphur.

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Monitoring frequency**	**Reference period**	**Monitoring standard or method**
A1 [Point A1 on site plan in Schedule 7]	36m stack – 501 Furnace	Oxides of Nitrogen (NO and NO2 expressed as NO2)	1.5kg/tonne melted glass after 31/12/18	Daily Average	Continuous	Principles of BS EN 14181 Note d
			1.5kg/tonne melted glass until 31/12/18	Quarterly	Periodic	Chemiluminescence analyser with reference to BS EN 14792 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
		Dust	0.09 kg/tonne melted glass after 31/12/18	Daily Average	Continuous	Principles of BS EN 14181 Note a
			0.3 kg/tonne melted glass until 31/12/18	Daily Average Note d	Continuous	Principles of BS EN 14181 Note a and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
		Sulphur Dioxide	1.0 kg/tonne melted glass	6 monthly (Minimum interval between monitoring shall be 4 months)	Periodic	BS EN 14791 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Monitoring frequency**	**Reference period**	**Monitoring standard or method**
		Gaseous Fluorides as HF	0.07 kg/tonne melted glass after 31/12/18	Quarterly in first year. Then 6 monthly (for 6 monthly minimum interval between monitoring shall be 4 months) Note g	Periodic	BS ISO 15713 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
			0.3 kg/tonne melted glass until 31/12/18	6 monthly (Minimum interval between monitoring shall be 4 months)	Periodic	BS ISO 15713 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
		Gaseous Chloride as HCl	0.05 kg/tonne melted glass	6 monthly (Minimum interval between monitoring shall be 4 months) Note c	Periodic	BS EN 1911 Parts 1, 2 and 3 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
		As, Co, Ni, Cd, Se, CrVI and their compounds (total)	4.5×10^{-3} kg/tonne melted glass	Annually	Periodic	BS EN 14385 and MID
		As, Co, Ni, Cd, Se, CrVI, Sb, Pb, CrIII, Cu, Mn, V, Sn and their compounds (total)	13.5×10^{-3} kg/tonne melted glass	Annually	Periodic	BS EN 14385 and MID

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Monitoring frequency**	**Reference period**	**Monitoring standard or method**
A2 [Point A2 on site plan in schedule 7]	47m stack – Furnace 502	Oxides of Nitrogen (NO and NO2 expressed as NO2)	1.5kg/tonne melted glass after 31/12/20	Daily Average	Continuous	Principles of BS EN 14181 Note a
			1.5kg/tonne melted glass until 31/12/20	Quarterly	Periodic	Chemiluminescence analyser with reference to BS EN 14792 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
		Dust	0.09 kg/tonne melted glass after 31/12/20	Daily Average	Continuous	Principles of BS EN 14181 Note a
			0.3 kg/tonne melted glass until 31/12/20	Daily Average Note d	Continuous	Principles of BS EN 14181 Note a and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
		Sulphur Dioxide	1.0kg/tonne melted glass	6 monthly (Minimum interval between monitoring shall be 4 months)	Periodic	BS EN 14791 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
		Gaseous Fluorides as HF	0.07 kg/tonne melted glass after 31/12/20	Quarterly in first year. Then 6 monthly (for 6 monthly minimum interval between	Periodic	BS ISO 15713 and Mass balance calculation on a monthly basis, methodology to be

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Monitoring frequency**	**Reference period**	**Monitoring standard or method**
				monitoring shall be 4 months) Note g		agreed with the Environment Agency.
			0.3 kg/tonne melted glass until 31/12/20	6 monthly (Minimum interval between monitoring shall be 4 months)	Periodic	BS ISO 15713 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
		Gaseous Chloride as HCl	0.05 kg/tonne melted glass	6 monthly (Minimum interval between monitoring shall be 4 months) Note c	Periodic	BS EN 1911 Parts 1, 2 and 3 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
		As, Co, Ni, Cd, Se, CrVI and their compounds (total)	4.5×10^{-3} kg/tonne melted glass	Annually	Periodic	BS EN 14385 and MID
		As, Co, Ni, Cd, Se, CrVI, Sb, Pb, CrIII, Cu, Mn, V, Sn and their compounds (total)	13.5×10^{-3} kg/tonne melted glass	Annually	Periodic	BS EN 14385 and MID

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Monitoring frequency**	**Reference period**	**Monitoring standard or method**
A3, A6, A7, A9	Refiner and Forehearth zones of both furnaces	Dust	0.09 kg/tonne melted glass	6 monthly (Minimum interval between monitoring shall be 4 months)	Periodic	BS EN 13284-1 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
		Gaseous Fluorides as HF	0.07 kg/tonne melted glass	Annually	Periodic	BS ISO 15713 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
		Gaseous Chloride as HCl	0.05 kg/tonne melted glass	Annually	Periodic	BS EN 1911 Parts 1, 2 and 3 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
A14-16, A20, A21, A33 (501 drying) & A31,A32 (502 drying)	Di-electric drying areas	Volatile Organic Compounds (as Carbon)	20mg/m^3 Note b	Annually Notes c and e	Periodic	BS EN 14791 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
A17-19	Binder preparation	Volatile Organic Compounds (as Carbon)	20mg/m^3 Note b	-	-	Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Monitoring frequency**	**Reference period**	**Monitoring standard or method**
A22-30 (502 hot air drying), A34-36 (501 hot air drying)	Hot Air Drying areas.	Dust	20mg/m^3	Annually	Periodic	BS EN 13284-1 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.
		Volatile Organic Compounds (as Carbon)	20mg/m^3 Note b	Annually Note f	Periodic	BS EN 14791 and Mass balance calculation on a monthly basis, methodology to be agreed with the Environment Agency.

Note a**:** Continuous Emission Monitoring systems shall be quality assured using the following general principles in BS EN 14181: functional tests with traceable gases or surrogates, and verification with parallel tests using a standard reference method.

Note b**:** The total release of Volatile Organic Compounds (as Carbon) from emission points A14 to A36 shall not exceed 1kg/tonne of melted glass.

Note c**:** The monitoring frequency may be reduced by written agreement with the Environment Agency.

Note d**:** Quarterly extractive sampling to monitoring standard BS EN 13284-1 and MID.

Note e: Annual extractive sampling for a representative sample of 4 ovens.

Note f: Annual extractive sampling for a representative sample of 6 ovens.

Note g: The monitoring frequency may be increased to establish compliance.

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
W1 (leading to Brookside Brook) on site plan in schedule 7	Clean uncontaminated water from site surface water drainage system	None	-	-	-	-

Table S3.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. Unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
S1 (emission to Sewage Treatment Works) on site plan in schedule 7	Site effluent treatment plant - Effluent monitoring area	None	-	-	-	-

Table S3.4 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
A1 [point A1 on site plan in Schedule 7] – 501 furnace	Carbon Monoxide g/m^3 or kg/tonne of melted glass	Continuous	Principles of BS EN 14181	Continuous Emission Monitoring systems shall be quality assured using the following general principles in BS EN 14181: functional tests with traceable gases or surrogates, and verification with parallel tests using a standard reference method.
A2 [point A2 on site plan in Schedule 7] – 502 furnace				

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter (as required by condition 3.5.1.)	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Emissions to air Parameters as required by condition 3.5.1	A1, A2, A3, A6, A7, A9 A14-16, A20, A21, A33, A31, A32 A17-19 A22-30, A34-36	Quarterly for continuous monitoring data	1 Jan, 1 Apr, 1 Jul and 1 Oct
		Quarterly for mass balance calculation	1 Jan, 1 Apr, 1 Jul and 1 Oct
		6 monthly and annually for extractive sampling	1 Jan, 1 Jul 1 Jan (annually)

Table S4.2 Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Water usage	Annually	tonnes
Energy usage	Annually	MWh

Table S4.3 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Air	Form air 1 or other form as agreed in writing by the Environment Agency	2016
Sewer	Form sewer 1 or other form as agreed in writing by the Environment Agency	2015
Water usage	Form water usage 1 or other form as agreed in writing by the Environment Agency	2015
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	2015
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	2015

Schedule 5 – Notification

These pages outline the information that the operator must provide.

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 EP Regulations.

Part A

Permit Number	**EPR/BR5213IG**
Name of operator	**PPG Industries (UK) Ltd.**
Location of Facility	**PPG Fibre Glass Wigan**
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified immediately	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified immediately	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified immediately	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified immediately	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

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 which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“daily average” for releases of substances to air means the average of valid half-hourly averages over a calendar day during normal operation.

“CEM” means continuous emissions monitoring.

Certification to the MCERTS performance standards indicates compliance with BS EN 14181 Continuous Emission Monitoring equipment shall be calibrated gases or surrogates utilised and verified with parallel tests using a standard reference method and an applicable international standard.

“emissions to land” includes emissions to groundwater.

“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.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

“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

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

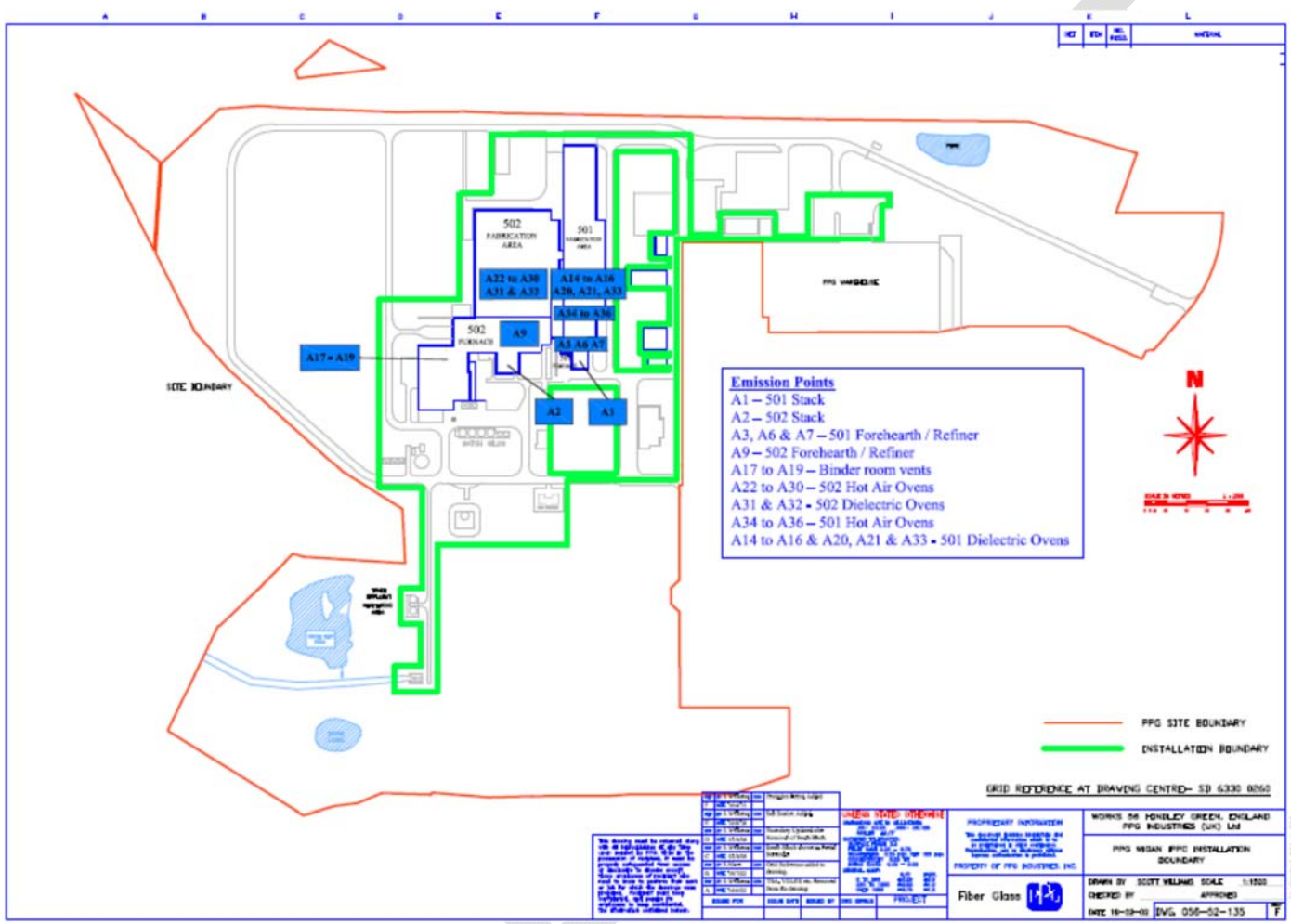
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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

- 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 no correction for oxygen; and/or
- in relation to emissions 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.

“year” means calendar year ending 31 December.

Schedule 7 – Site plan



END OF PERMIT

Annex to conditions – Derogation under Industrial Emissions Directive

Derogation under Article 15(4) of Industrial Emissions Directive

DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions

Operating Techniques
We have considered the Operator's proposed techniques and its comparison against other relevant techniques as described in the BAT Conclusions in the Commission Implementing Decision 2012/134/EU for the Glass sector, published 8 March 2012. Our full reasoning is given in our decision document that accompanies the permit determination. The proposed techniques will result in emissions for which the appropriate emission limits are less stringent than those associated with the best available techniques as described in BAT conclusions. The criteria for the derogation is based on the technical characteristics of the furnaces. The delay will allow the proposed emissions control technology to be installed when the furnaces are next taken out of service for their scheduled rebuilds in 2018 and 2020. This criteria is described in Defra guidance - "the practicability ....of interrupting the activity so as to install improved emission control upon the pollutant(s)"[1]. Furnace 501 is due to be rebuilt in 2018 and a derogation has been requested until 1 January 2019. Furnace 502 is due to be rebuilt in 2020 and a derogation has been requested until 1 January 2021. The Operator proposes to install a combination of dry filtration (ceramic/bag filters) and scrubbing (lime injection). These secondary abatement measures are described as BAT in BAT Conclusions 32 (for dust) and 35 (for HF). We have considered the Operators justification for departure from the guidance and accept it in the following respects and for the following reasons: Delaying installation of equipment until the next scheduled maintenance shutdown is a valid technical characteristic which is recognised in the Defra guidance. We accept that there is no realistic possibility of being compliant, other than by shutting down the furnaces and not restarting them until the secondary abatement has been installed, which would be in 2018 at the earliest. We are satisfied that the Operator has demonstrated that the cost of complying with the BAT AEL's by shutting down now, is disproportionate to the value of damage to the environment caused by delaying full implementation until 2021.

[1] "Industrial emissions Directive EPR Guidance on Part A installations" Defra, February 2013. Paragraph 4.41.

We have therefore set the following alternative requirements:

- Set ELVs in table S3.1 of this permit that will allow the furnaces to continue to operate at current emission levels, which are higher than the BAT AEL's. Assessment has already been undertaken which confirm that these temporary emission limits will prevent significant pollution of the environment or harm to human health.

	BAT AEL kg/tonne melted glass)	**Current emission levels Derogation-Furnace 501 (kg/tonne melted glass)**		**Current emission levels Derogation-Furnace 502 (kg/tonne melted glass)**	
Dust	< 0.045 – 0.09	0.3	Until 01 January 2019	0.3	Until 01 January 2021
HF	< 0.02 – 0.07	0.3	Until 01 January 2019	0.3	Until 01 January 2021

- Require secondary abatement to be installed on each furnace. The abatement on the first furnace will be complete by the end of 2018, with abatement on the second furnace complete by the end of 2020. As the installation of abatement into each furnace is completed the ELVs will tighten to BAT AEL's as defined in table S3.1 of this permit. We consider that this is both practical and justifiable. This represents significant investment by the Operator in equipment that will serve future rebuilds, thus future-proofing the Installation.
- Set an improvement condition in table S1.3 of this permit to provide progress reports in meeting BAT 32 and BAT 35 and the associated BAT AEL's for dust and HF, giving confidence the programme for delivery of the improvements is on track.