



**POLLUTION PREVENTION & CONTROL ACT 1999
Environmental Permitting (England and Wales) Regulations
2010 (as amended)
Statutory Instrument 2010 No. 675**

A2 PERMIT

Ardagh Glass Limited

Permit Reference IPPC/A2/01/2016/V1

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Regulatory Services

Pollution Prevention & Control Act 1999 Environmental Permitting (England & Wales) Regulations 2010 (as amended)

Permit To Operate A Scheduled Installation

Date of Original Application: 23rd July 2003

Reference No. IPPC/A2/01/2016/V1

Ardagh Glass Limited is hereby permitted to operate an installation for the manufacture of glass in plant with a melting capacity greater than 20 tonnes per day as defined in Schedule 1, Part 2, Section 3.3, Part A2 (a) of the Environmental Permitting (England and Wales) Regulations 2010 as amended, as described below and in accordance with the attached conditions.

Operator Name & Address

Ardagh Glass Limited
Burton Road
Monk Bretton
Barnsley
S71 2QG

Address of Permitted Installation

Ardagh Glass Limited
Burton Road
Monk Bretton
Barnsley
S71 2QG

Registered Office

Ardagh Glass Limited
Headlands Lane
Knottingley
West Yorkshire
WF11 0HP

Registration no. 567801

Signed

Mr. Philip Spurr
Service Director
Culture, Housing & Regulation

Dated: 3rd March 2016

Barnsley Metropolitan Borough Council,
Regulatory Services,
PO Box 634,
Barnsley
S70 9FB

(the address for all correspondence in relation to this permit)

Introductory Note

The Permit is issued under Regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010 (the EP Regulations) as amended. It Permits the operation of an Installation carrying out an activity described within Part A2 (a) of Section 3.6 of Chapter 3, Part 2, Schedule 1, of the Environmental Permitting (England and Wales) Regulations 2010 as amended.

In some sections of the Permit, conditions require the operator to use Best Available Techniques (BAT), in each of the aspects of the management of the installation, to prevent, and where that is not practicable, to reduce emissions. In determining BAT, the operator should pay particular attention to relevant sections of The Manufacture of Glass BREF note and in particular The Manufacture of Glass BAT Conclusions, reference 2012/134/EU published on the 8th March 2012.

Note that the Permit requires the submission of certain information to the Regulator, and in addition, the Regulator has the power to seek further information at any time under Regulation 60 of the EP Regulations provided that the request is reasonable.

Public Registers

Considerable information relating to Permits, including the Application, is available on public registers in accordance with the EP Regulations. Certain specific information contained in the Application for this Permit has been withheld from the public register because it is deemed to be commercially confidential. However the Permit has been written taking in to account the specific information but where necessary, wording relevant conditions such that confidential information is not disclosed.

Variations to the Permit

The Permit may be varied in the future by the Regulator, by serving a variation notice on the Operator. Should the Operator want any of the conditions of the Permit to be changed, a formal application must be submitted (the relevant forms are available from the Regulator).

Surrender of the Permit

Before this Permit can be wholly or partially surrendered, an application to surrender the Permit has to be made by the Operator. For the application to be successful, the Operator must be able to demonstrate to the Regulator that there is no pollution risk and that no further steps are required to return the site to a satisfactory state.

Transfer of the Permit or part of the Permit

Before the Permit can be wholly or partially transferred to another Operator, an application to transfer the Permit has to be made jointly by the existing and proposed Operators. A transfer will not be approved if the Regulator is not satisfied that the proposed Permit holder will be the person having control over the operation of the installation, or will not comply with the conditions of the transferred Permit. In addition, if the Permit authorises the Operator to carry out a specified waste management activity, the transfer will not be approved if the Regulator does not consider the proposed Permit holder to be a 'fit and proper person' as required by the EP Regulations.

Description of Activities

The installation is situated in Monk Bretton Barnsley and carries out a glass manufacturing process where the melting capacity is greater than 20 tonnes per day.

The installation includes a central batch plant, mixing and manufacturing machinery, five end fired furnaces (4 in operation, 1 currently mothballed), 2 particulate (electrostatic precipitator) and sulphur dioxide (scrubber unit) arrestment systems and packaging machinery. This also includes car parking, loading bays, lagoons and a oil storage facility (which is no longer used).

Technical Description of Activities

Raw material storage and handling

Raw materials are received, handled and stored on site, either in the batch plant or on the cullet square (foreign cullet only). They are delivered either by road or rail. Primary materials include sand, soda ash, limestone, calumite, dolomite, felspar and cullet. Sodium sulphate is also used in the glass mix to remove impurities. All materials are bought in externally, with the exception of some of the cullet, which is recycled from waste produced in the process at the installation.

Sand is delivered wet either by rail or by covered tipper trucks, depending on where it is sourced and initially stored in a covered bay. At this point the wet sand is allowed to stand for some days prior to discharge. When the sand is stored in this manner the moisture content stabilises at a predictable level. It is then discharged via an enclosed conveyor and bucket elevator, to an enclosed concrete silo.

Soda Ash, dolomite, felspar, sodium sulphate, calumite and limestone are delivered by road tanker and blown into enclosed silos. However, some soda ash and felspar is delivered by road in 25kg bags. The bagged material is also stored inside the batch plant in designated areas. Bag filters are fitted to each silo. These are checked and maintained twice each year.

Iron silicate, carbon, portachrome, selenium and cobalt are delivered by road in sealed drums (palletised) and stored internally.

'Own' Cullet is used from recycled "in-house" processes and any out of specification product. All transportation of re-usable cullet is via internal conveying systems and or bucket elevators for eventual storage in an enclosed metal silo.

'Foreign Cullet' is delivered on site by road and stored outside on the cullet square. It is delivered as required to the furnace bunkers by wagon, from where it is transported to the furnace via a system of conveyors and bucket elevators.

Weighing and Mixing

Weighing of materials takes place in the batch house where each individual material is weighed in a silo mounted on load cells. Before dispatch the weight of each silo is checked by a plc system. This plc control system is a computerised checking system that holds the individual recipes for each furnace glass composition. From this information it has knowledge of the weight of material that should be fed from each individual scale for the glass composition to be correct. An output from the load cells on the scales is fed to the plc system, and the weight of material that this output represents is compared to that in the recipe. Only if the two weights are the same is

the material dispatched to the furnaces for melting. This prevents errors in weighing leading to lost production through inaccurate glass compositions.

The material is then fed via conveyors and bucket elevators into an 'A bin' holding silo where the combined weight is checked, then discharged into a rotating drum mixer for mixing. All conveyors and elevators are enclosed to minimise fugitive emissions. Using damp sand (approximately 2.5% moisture content) also helps reduce fugitive emissions. The materials are mixed for a pre-determined time and then conveyed to a storage silo prior to discharge into the furnace. The blender has an extraction system discharging to air via a bag filter.

Furnace Operations

Once mixed, raw materials are fed by conveyors into the furnaces for melting. The furnaces are end-fired regenerative furnaces and are powered by a combination of an interruptible supply of natural gas (all furnaces) and electric boost. The melting capacities of furnaces B1, B3, B4, B6 and B7 are between 185 to 430 tonnes of glass respectively and operate at temperatures between 1300°C and 1600°C.

Typical throughput can vary, dependent on production demand and product profile, from approximately 75% of maximum capacity upwards, although efforts are made to maximise furnace utilisation via good scheduling to obtain optimum energy efficiency.

The furnaces B1 and B3 vent through a combined stack to atmosphere, via the particulate (electrostatic precipitator) and sulphur dioxide arrestment system named as EP1. Furnaces B4 and B7 vents through a combined stack to atmosphere, via the particulate (electrostatic precipitator) and sulphur dioxide arrestment system named as EP2. Furnace number B6 is currently mothballed.

Forming

The feeder mechanism creates a number of equal parallel streams and cuts these into accurate lengths by use of a shear mechanism to obtain gobs of molten glass at the correct weight and temperature.

Glass temperature at this point is accurately controlled at various points in the forehearth to achieve the best homogeneity possible. There are typically nine or twelve thermocouples and seven pyrometers available to achieve and control the gob temperature. Small variations in gob temperature change the viscosity of the glass and so change the weight because the glass runs more quickly or slowly from the orifice.

The other factor which is critical for obtaining the correct gob weight is furnace glass level, which is controlled by the furnace operators to within a tenth of a millimeter.

The primary shape or blank is formed in a first mould by pressure from compressed air on a mechanical plunger. This penetrates the gob of glass and pushes it's outer surfaces against the shape formed by the cast iron mould which is closed around it. The purpose of this first mould (called a parison mould) is both to form the shape of the parison and to extract the heat from the glass as quickly as possible in order that it is stable enough to be transferred to the final blow mould.

The primary shape is then transferred to the final blow mould, where it is blown by compressed air. This expands the parison to the shape of the final blow mould which has closed around it. This is the actual shape of the desired container. When the mould has removed enough heat for the container to be stable enough for transportation it leaves the final blow mould.

The finished product is then removed by take-out claws, placed on a conveyor belt, and taken into the annealing lehr. On its way to the annealing lehr a hot end coating material (Organotin Chloride) is applied to the containers. This coating is applied by passing the containers through a coating hood. This hood surrounds the conveyor belt along which the containers travel.

Annealing

Once formed the containers are put through a lehr to anneal them (remove stresses caused by rapid cooling). Annealing involves reheating then cooling the ware down under controlled conditions, typically in the temperature range of 550 to 100 deg.C. Different temperature profiles are determined depending on the container type, size and weight. The lehr is split into eight zones, some of which apply heating, some of which apply cooling. Each zone has a thermocouple in the zone to determine the temperature and a plc control system adjusts firing or cooling rates accordingly if temperatures at the thermocouples deviate from the pre-determined set point. The lehrs are well insulated to achieve optimum energy efficiency. The lehrs are powered by natural gas burners, except 4.1 and 4.2 lehrs which are electrically heated. The lehrs initially heat up until the thermocouples inside the lehr confirm that the set point temperatures have been reached. When the set point temperatures are reached the burners turn off. The latest lehrs use a draft optimisation technology to ensure that all heat removed from containers is recycled within the lehr, hence reducing energy consumption. If the temperature in a zone drops below set point the burners fire until the set point temperature is attained once again.

At the exit from the lehr the ware should be between 80 and 100 degrees Celsius. This temperature range is best for application of cold end coating (Tegoglas 702 oleic acid or RP40). Cold end coating is applied by a shuttle which passes between rows of containers at the lehr exit point. The cold end coating material is sprayed onto the bottles as they pass beneath the shuttle on the conveyor belt leaving the lehr.

Conditions

1 Releases To Air

1.1 Point Source Emission to Air General Conditions

- 1.1.1 Emissions from the glass melting furnaces no. B1, B3, B4, B7 and associated hot end coating processes shall be contained and adequately extracted via the particulate matter and sulphur dioxide arrestment system to meet the specified emission limit values as detailed in Table 2 below.
- 1.1.2 The Operator shall notify the Regulator a minimum of 28 days prior to making any changes to the furnace operation configurations such as bringing furnace number B6 back on line. The Operator shall, as part of this notification, provide evidence to demonstrate that the new furnace operational configuration is capable of operating within the requirements of the permit (including modelling of process emissions as required by condition 1.1.5 of this permit). The Operator shall obtain written approval from the Regulator prior to the changes being implemented.
- 1.1.3 Emissions to air from the glass manufacturing process shall be dispersed in such a way as to ensure that the relevant National Air Quality Standards for nitrogen dioxide, sulphur dioxide, lead, particulate matter and any other relevant standards that may be introduced in the future are complied with.
- 1.1.4 Exhaust gases from the glass manufacturing furnaces and hot end coating processes shall be discharged at an efflux velocity greater than 15m/s or such a level as determined necessary, during normal operating conditions, in order to achieve adequate dispersion of emissions.
- 1.1.5 The Operator shall carry out a review, where the Regulator deems that it is necessary, for the dispersion of emissions (stack heights, efflux velocities etc) from furnace and hot end coating processes prior to any changes to furnace operation configurations. The review shall include an appropriate emission modelling exercise to determine ground level concentrations of emissions from the process.
- 1.1.6 Emissions from the stacks numbered A1 and A2, in normal operations, shall not exceed the equivalent of Ringelman Shade 1 as described in British Standard BS 2742:2009.
- 1.1.7 Stacks shall not be fitted with any restriction at the final opening such as a plate, cap or cowl.
- 1.1.8 The furnace regenerator bottoms shall be inspected on a weekly basis and be cleaned as necessary to maintain furnace performance. The Operator shall carry out an assessment, prior to these works being carried out, to ensure that emissions from this process are contained and minimised as far as is practical.

1.2 Point Source Emissions To Air - Emission Limits

1.2.1 Monitored release points to air shall be referenced as detailed in Table 1 below.

TABLE 1	
Release Point	Description
A1	Emissions from glass furnaces number 1 and 3 and associated hot end coating operations
A2	Emissions from glass furnace number 4 and 7 and associated hot end coating operations

1.2.2 The emission limits for the following release points as detailed in Table 2 shall not be exceeded.

TABLE 2		
Release Points	Emission	Limit
A1, A2	Oxides of nitrogen (NO _x)	1800 mg/Nm ³
Furnace B7	Oxides of nitrogen (NO _x)	800 mg/Nm ³
A1	Particulate Matter (Dust)	20 mg/Nm ³
A2	Particulate Matter (Dust)	20 mg/Nm ³
A1,A2	Oxides of Sulphur (SO _x)	700 mg/Nm ³
A1,A2	Carbon Monoxide	100 mg/Nm ³
A1, A2	Hydrogen Chloride (expressed as HCl)	20 mg/Nm ³
A1, A2	Hydrogen fluoride (Expressed as HF)	5 mg/m ³
A1, A2	Metals As, Co, Ni, Cd, Se, CrVI, Sb, Pb, CrIII, Cu, Mn, V, Sn	5 mg/m ³ (Total Metals)

All pollution concentrations shall be expressed at reference conditions of 273k and 101.3kPa. The concentration of pollutants in the furnace emissions shall be normalised to 8% oxygen when measured dry.

- 1.2.3 The emission limits for the following release points shall be achieved by the dates specified within the Table 3 below;

TABLE 3			
Release Point	Emission	Limit	Compliance Date
A1, A2	Oxides of nitrogen (NO _x)	800 mg/Nm ³	1 st December 2022
A1, A2	Oxides of Sulphur	500 mg/Nm ³	To be agreed with the Regulator

All pollution concentrations shall be expressed at reference conditions of 273k and 101.3kPa. The concentration of pollutants in the furnace emissions shall be normalised to 8% oxygen when measured dry.

1.3 Controlling Emissions of Oxides of Nitrogen from the Glass Melting Process

- 1.3.1 The Operator shall undertake measures relating to the primary methods for reducing oxide of nitrogen emissions during furnace shutdowns and repairs at the furnace rebuild dates stated in the site BAT assessment document reference; Ardagh Glass Ltd, BAT Assessment Barnsley 47063542 LERP0001 August 2015.
- 1.3.2 Emissions from the glass melting furnaces B1, B3 and associated coating processes shall be exhausted to atmosphere through stack emission point A1 in such a way as to ensure that the emission limits for Oxides of nitrogen (NO_x) as detailed in Table 2 of this permit are being complied with.
- 1.3.3 Emissions from the glass melting furnaces B4, B7 and associated coating processes shall be exhausted to atmosphere through stack emission point A2 in such a way as to ensure that the emission limits for Oxides of nitrogen (NO_x) as detailed in Table 2 of this permit are being complied with.

1.4 Controlling Emissions of Particulates (Dust) from the Glass Melting and Associated Coating Processes

- 1.4.1 Emissions from the glass melting furnaces B1, B3 and associated coating processes shall be exhausted to atmosphere through stack emission point A1, via the electrostatic precipitator. The electrostatic precipitator shall be designed and operated in such a way as to ensure that the emission limits for particulate (including metals) as detailed in Table 2 of this permit are being complied with.
- 1.4.2 Emissions from the glass melting furnace B4, B7 and associated coating processes shall be exhausted to atmosphere through stack emission point A2, via the electrostatic precipitator. The electrostatic precipitator shall be designed and operated in such a way as to ensure that the emission limits

for particulate (including metals) as detailed in Table 2 of this permit are being complied with.

- 1.4.3 The Operator shall maintain and service the electrostatic precipitators, named as stack emission points A1 and A2, in line with the manufacturer's recommendations. A copy of the maintenance programme shall be held on site and available for Inspection by the Regulator upon request.
- 1.4.4 The Operator shall review the primary methods for reducing particulate emissions during furnace shutdowns and repairs.

1.5 Controlling Emissions of Oxides of Sulphur from the Glass Melting Process

- 1.5.1 Emissions from the glass melting furnaces B1 and B3 shall be exhausted to atmosphere through stack emission point A1, via the sulphur dioxide scrubbing unit. The scrubbing unit shall be designed and operated in such a way as to ensure that the emission limits for sulphur dioxide as detailed in Table 2 of this permit are being complied with.
- 1.5.2 Emissions from the glass melting furnace B4 and B7 shall be exhausted to atmosphere through stack emission point A2, via the sulphur dioxide scrubbing unit. The scrubbing unit shall be designed and operated in such a way as to ensure that the emission limits for sulphur dioxide as detailed in Table 2 of this permit are being complied with.
- 1.5.3 The Operator shall undertake a review of the recycling of flue gas filter dust back into the furnace. The review shall be recorded and, as a minimum, include the following;
 - a) The cost per tonne of abating SO_x emissions during current operations
 - b) The cost per tonne, if feasibly possible, of abating SO_x emissions to meet the limit of 500mg/Nm³
 - c) Chemical and physical characterisation of the flue dust generated in EP1 and EP2
 - d) The waste classification of the flue dust, including what components, if any, trigger a classification as hazardous waste
 - e) A sulphur balance for each furnace, and for each glass type produced, to investigate the link between recycling rates of filter dust and the associated value for SO₂
 - f) The identification of alternative uses/outlets for any flue dust in excess of the recycle rates determined in e). This should be undertaken in accordance with the Waste Framework Directive i.e., in order of priority should consider: reuse, recycling, recovery or, where that is technically and economically impossible, disposal, while avoiding or reducing any impact on the environment

- g) A description, for each furnace, of the options for flue dust recycling into the furnace in combination with treatment and/or disposal offsite of excess filter dust, including a cost benefit analysis for each option and the timescale for implementation
- h) A full BAT assessment, using the information obtained in a) to g) above, identifying the operators proposed option for flue dust recycling, treatment and/or disposal in order to meet the BAT AEL value for SO₂ of 500mg/m³

The full details and conclusions of the review shall be submitted in writing to the regulator no later than the 1st March 2018.

1.6 Controlling Emissions to Air from the Hot End Coating Processes

- 1.6.1 Emissions from the hot end coating processes associated with furnaces numbers B1 and B3 shall be exhausted to atmosphere through stack emission point A1, via the electrostatic precipitator and scrubbing unit and shall comply with the emission limits as detailed in Table 2.
- 1.6.2 Emissions from the hot end coating processes associated with furnace number B4 and B7 shall be exhausted to atmosphere through stack emission point A2, via the electrostatic precipitator and scrubbing unit and shall comply with the emission limits as detailed in Table 2.
- 1.6.3 The Operator shall review the methods by which the hot end coatings are applied on a 2 yearly basis. This review shall look at how the coatings are applied and if usage can be minimised. A copy of the review shall be held on site and available to the Regulator upon request.

1.7 Monitoring of Contained Emissions to Air

- 1.7.1 The release points detailed in Table 1 shall be monitored in compliance with the main procedural requirements of the following standard methods and frequencies as specified in Table 4 below.

TABLE 4				
Release Point	Emission	Type of Monitoring	Frequency of Monitoring	Methodology
A1, A2	Oxides of nitrogen	Continuously recorded indicative monitoring plus once a year extractive	Continuous and annually	BS EN 14792
A1, A2	Particulate Matter	Continuously recorded indicative monitoring plus once a year	Continuous and annually	BS EN 13284-1 BS ISO 12141:2002 BS ISO 9096:2003

A1, A2	Oxides of Sulphur	extractive Continuously recorded indicative monitoring plus once a year extractive	Continuous and annually	EA M21 BS 6069 ISO 7935
A1, A2	Carbon Monoxide	Extractive	Annually	BS EN15058
A1, A2	Chlorides	Extractive	Annually	BS EN 1911
A1, A2	Fluorides	Extractive	Annually	BS ISO 15713
A1, A2	Metals As, Co, Ni, Cd, Se, CrVI, Sb, Pb, CrIII, Cu, Mn, V, Sn	Extractive	Annually	To be agreed with Regulator

- 1.7.2 The Operator shall notify the Regulator at least 7 days before any periodic monitoring exercise to determine compliance with emission limit values. The Operator shall state the provisional time and date of the monitoring, pollutants to be tested and methods to be used.
- 1.7.3 The results of the sampling as required by Condition 1.7.1, above, shall be received by the Regulator not later than eight weeks from the date of sampling.
- 1.7.4 Any deviation from the standard methods detailed in Table 4 above, shall be notified to the Regulator prior to a different method being implemented. Justification for a deviation shall also be provided to the Regulator.
- 1.7.5 The Operator shall ensure that adequate facilities for sampling are provided on stacks or ducts. The Operator shall review the positioning of the sampling points as part of the installation of the particulate abatement plant. The new sampling points shall be designed to comply with the British or equivalent standards. e.g. BS ISO 9096: 2003 or BS EN 13284-1.
- 1.7.6 The introduction of dilution air to achieve the concentration limits shall not be permitted.
- 1.7.7 A visual assessment of emissions from release points A1 and A2 shall be made from a position with a clear view of the stacks regularly and frequently and not less than once a day. All adverse assessments shall be investigated immediately and remedial action taken.
- 1.7.8 The results of all monitoring and inspections carried out in accordance with

Condition 1.7.7 above, shall be recorded in the installation log, kept in accordance with Condition 9.1. All adverse assessments shall be recorded together with details of any remedial action taken.

- 1.7.9 Monitoring shall be carried out by a stack testing organisation accredited to MCERTS standards or as agreed with the Regulator.
- 1.7.10 Emissions from emission points A1 and A2 shall be continuously monitored for oxides of nitrogen, oxides of sulphur and particulates. The instrument shall be operated, maintained and calibrated in accordance with the appropriate standards and manufacturers' instructions.
- 1.7.11 The Operator shall record details of calibrations and maintenance of the continuous monitor. This shall also include records of any downtime. Downtime shall be kept to a minimum and the Operator shall review calibration and maintenance procedures in instances where this exceeds 5% over any 3 month period.
- 1.7.12 Results exceeding the emission limit values as detailed in Table 2 of this permit from any monitoring activity (both continuous and non-continuous) and malfunctions or breakdowns leading to abnormal emissions shall be investigated and corrective action taken immediately. The Operator shall notify the Regulator within 1 hour of becoming aware of any exceedances of the emission limits.
- 1.7.13 The continuous monitoring instrument shall be fitted with audible or visual alarms to warn the Operator of arrestment plant failure or malfunction. The activation of alarms shall be automatically recorded.
- 1.7.14 The Operator shall provide the Regulator with a summary of continuous monitoring results for Particulate Matter, Oxides of Sulphur and Oxides of Nitrogen on a six monthly basis. The information shall be submitted within 3 weeks of the period to which it relates and shall include highest recorded values for the monitoring period for each pollutant and details of any exceedances of the emission limits.

1.8 Fugitive Emissions to Air

- 1.8.1 The Operator shall ensure that all skips and vessels containing dusty or volatile materials are adequately covered to minimise emissions to air.
- 1.8.2 The Operator shall ensure that conveyors are enclosed on the top and sides and maintained, in order to prevent emissions of dust.
- 1.8.3 With the exception of sand and cullet all potentially dusty raw materials shall be stored undercover.
- 1.8.4 The material collected from abatement plant, shall be transferred and contained by methods which do not give rise to particulate emissions. Such material should be contained and kept enclosed to ensure that fugitive emissions are prevented prior to removal from site or returning back into the process.
- 1.8.5 The Operator shall review the use of mould swab materials with the aim of reducing fugitive emissions to air from this process on a 2 yearly basis. The

Operator's proposals following the results of this study shall be submitted to the Regulator for approval within 8 weeks of the review taking place.

1.9 Monitoring of Fugitive Emissions to air

- 1.9.1 Visual assessments shall be made of particulate matter emissions from raw material storage areas including the storage hoppers and the arrestment plant to the storage hoppers. These assessments shall be carried out by the Operator on a daily basis to assess plant operations and also during the delivery and transfer of raw materials to site. These shall be carried out from a position with a clear view of the process.

All adverse assessments shall be investigated immediately and remedial action taken.

- 1.9.2 All adverse assessments shall be recorded in the installation log, kept in accordance with Condition 9.1, together with details of any remedial action taken.

2.0 Emissions To Water

2.1 Point Source Emissions to Surface Water and Sewer

- 2.1.1 The discharge at NGR: SE 375 092 (formerly Discharge Consent 3306) to a tributary of Cudworth Dyke shall consist solely of trade effluent, namely Site Drainage and Cooling Water and shall comply with the limits as detailed in conditions 2.1.2, 2.1.3, 2.1.4 and 2.1.5 of this permit.
- 2.1.2 The discharge shall not contain more than 50 milligrams per litre of suspended solids (measured after drying at 105°C).
- 2.1.3 The discharge shall contain no visible oil or grease.
- 2.1.4 The rate of discharge shall not exceed 1863 cubic metres per hour.
- 2.1.5 The volume of the effluent discharged in any one day shall not exceed 500 cubic metres.
- 2.1.6 All discharges to sewer shall be subject to the requirements of the Trade Effluent Discharge Consent issued by Yorkshire Water (Ref:3306).
- 2.1.7 Any discharge that breaches any condition of the Trade Effluent Discharge Consent shall be notified to the Regulator within eight weeks of the occurrence of the breach.

2.2 Monitoring of Emissions to Surface Water

- 2.2.1 Facilities shall be provided so as to enable samples of the effluent to be conveniently obtained at the sample point.
- 2.2.2 The Operator shall carry out regular monitoring of the discharge point as detailed in condition 2.2.1. The Operator shall sample the discharge a minimum of 12 times per year. The samples obtained shall then be analysed for suspended solids at a NAMAS accredited laboratory.
- 2.2.3 The Operator shall carry out visual assessments of emissions to surface water (namely Cudworth Dyke). These shall be carried out at least once per week and also during the sampling exercise as detailed in condition 2.2.2 of this permit. A record shall be made, in the installation log, of any visible oil present at the time of monitoring. Adverse results shall be reported to the Regulator along with actions taken within 7 days of the event.
- 2.2.4 The results of the monitoring exercise as detailed in condition 2.2.2 shall be forwarded to the Regulator within 60 days of the sample being taken.

2.3 Point Source Emissions To Groundwater

- 2.3.1 No emission from the Permitted Installation shall give rise to the introduction into groundwater of any hazardous substance, as defined by the requirements of The Groundwater (England and Wales) Regulations 2009.

2.3.2 No emission from the Permitted Installation shall give rise to the introduction into groundwater of any hazardous substance, as defined by the requirements of The Groundwater (England and Wales) Regulations 2009.

2.3.3 For substances other than those defined as hazardous by the Groundwater Regulations 2009, the operator shall use BAT to prevent, or where that is not practicable, to reduce emissions to groundwater from the Permitted Installation.

2.4 Fugitive Emissions to Surface Water, Sewer and Groundwater

2.4.1 The Operator shall use BAT so as to prevent, or where that is not practicable, reduce fugitive releases of substances to groundwater and sewer from the Permitted installation, and in particular:

2.4.2 The Operator shall maintain a detailed survey of the routing of all installation drains and subsurface pipework including all subsurface sumps and storage vessels. The survey shall be reviewed and updated as material changes take place at the installation. The survey shall be held on site as part of the installation log and made available for inspection by the Regulator.

2.4.3 The Operator shall establish an inspection and maintenance programme for all subsurface structures as part of the management system as detailed in condition 5.1.1 of this permit. The survey shall be reviewed and updated as material changes take place at the installation. The survey shall be held on site as part of the installation log and made available for inspection by the Regulator.

2.4.4 All operational areas shall be equipped with an impervious surface, spill containment kerbs, sealed construction joints, and connection to a sealed drainage system with the exception of the areas notified and agreed with the Regulator. The surface shall be of a good integrity and shall be inspected on an annual basis and maintained accordingly. Inspections shall be recorded as part of the installation log required by condition 9.1 of this permit.

2.4.5 The Operator shall maintain a record of the design and condition of the surfacing of all operational areas. This shall include any relevant information including, as appropriate, capacities, thickness, falls, material, permeability, strength/reinforcement, and resistance to chemical attack. This shall be updated following any relevant material changes.

2.4.6 All tanks containing liquids whose spillage could be harmful to the environment shall be contained. The Operator shall review the bunding arrangements and ensure that all bunds :

- are impermeable and resistant to the stored materials
- have no outlet (that is, no drains or taps) and drain to a blind collection point
- have pipework and drain cocks routed within bunded areas with no penetration of contained surfaces
- are designed to catch leaks from tanks or fittings
- have a capacity of at least 110% of the largest tank

- are visually inspected at least weekly and any contents pumped out or otherwise removed under manual control after checking for contamination
 - have an annual maintenance inspection (normally visual but extending to water testing where structural integrity is in doubt)
- 2.4.7 All sumps shall be impermeable and resistant to stored materials and shall be inspected on a weekly basis. The content of the sump shall be checked for contamination prior to being pumped out.
- 2.4.8 All storage tanks, with the exception of the waste oil storage tanks, shall be fitted with volume indicators to warn of overfilling. The Operator shall ensure that there is sufficient capacity in the tank prior to deliveries taking place. Filling and delivery connections shall be located within a bunded area and shall be locked when not in use. The integrity of tanks shall be inspected on an annual basis. These inspections shall be included in the maintenance schedule and shall be recorded and documented.
- 2.4.9 The waste oil storage tanks shall be checked to ensure there is sufficient capacity prior to the depositing of material in the tanks. Care shall be taken when depositing material into the tanks to ensure there is no spillage of material.
- 2.4.10 Storage areas and containers shall be designed and operated to minimise the risk of fugitive releases to surface water, sewer and groundwater, in particular:
- storage areas shall be located away from watercourses and shall be protected against vandalism
 - containers shall be inspected prior to placing in storage for any leakage, wear and tear etc., appropriate action shall be taken when defects are detected
 - storage areas and silos shall be inspected at least monthly to check for signs of leakage or potential leakage
- 2.4.11 All containers of hydrocarbons and chemicals stored within the designated storage areas which are discharged manually shall be placed either in bunded areas or on drip trays. The filling points shall have outlets which discharge within the bunded area/drip tray.

2.5 Diesel Fuel Storage Tank

- 2.5.1 Diesel Fuel oil, to be used for Furnace B7 in an emergency situation, shall be stored in the designated Diesel Fuel storage tank.

3.0 Emissions to Land

- 3.1 No emissions from the Permitted installation shall be made to land.
- 3.2 The Operator shall notify the Regulator, as soon as is reasonably practicable, of any information concerning the state of the site which affects or updates that supplied to the Regulator as part of the site report submitted as part of the Permit application.

- 3.3 The Operator shall notify the Regulator in writing of any area or zone within the boundary of the installation that has been subject to below ground remediation since the issue of the Permit. Subject to agreement in writing from the Regulator, any necessary analysis of sub-soil to re-establish baseline pollutant levels shall be undertaken.

4.0 Odour

- 4.1. All emissions to air from the installation shall be free from offensive odour, as perceived by the Regulator, outside of the installation boundary, as outlined in red on plan reference IPPC/A2/01/2016/V1 Plan 1. The Operator shall not be deemed to have breached this condition if the Operator has used BAT to prevent, or where that is not practicable, to reduce such odorous emissions.

5.0 Management

5.1 Environmental Management System (EMS)

- 5.1.1 The Operator shall have an existing management system in operation that shall be reviewed and audited on an annual basis.

The Environmental Management system shall provide an effective technique for ensuring all pollution prevention and control techniques are delivered reliably and on an integrated basis, and shall include but not be limited to –

A documented preventative maintenance schedule, covering all plant whose failure could impact on the environment.

Documented procedures for controlling and monitoring of emissions

Records of checks made, maintenance etc. (log books etc)

Records of breakdowns (include a review following breakdowns)

Auditing systems in place for ensuring procedures are followed, maintenance carried out, records kept up to date etc.

A documented training system (including awareness of the regulatory implications of the permit, awareness of all operating procedures, awareness of potential environmental impacts under normal and abnormal circumstances, prevention of accidental emissions and action to be taken when accidental emissions occur and awareness of procedures for dealing with a breach of permit)

5.2 Operations And Maintenance

- 5.2.1 The Operator shall maintain a list of existing key process and abatement equipment that shall be updated following any changes to the process. This shall be held on site and available for inspection by the Regulator.
- 5.2.2 An effective documented preventative maintenance programme including documented operational control procedures shall be employed on all aspects of the installation whose failure could impact on the environment.

This shall also include major 'non productive' items such as tanks, pipework, retaining walls, bunds, ducts and filters. This shall be reviewed and updated annually and shall be available for inspection by the Regulator.

- 5.2.3 Essential spares and consumables shall be held on site or be available at short notice from suppliers, such that plant breakdown can be rectified rapidly.
- 5.2.4 Any malfunction or breakdown which leads to abnormal emissions shall be addressed promptly and process conditions and operations adjusted such that the abnormal emissions cease until such time as reparation is effected. All such malfunctions or breakdowns shall be recorded in the installation log kept in accordance with Condition 9.1.
- 5.2.5 The Regulator shall be notified within 1 hour, of any abnormal emission that is likely to effect the local community.
- 5.2.6 A competent elected person and deputy(s) shall be appointed to liaise with the Regulator and the public with regard to complaints. The Regulator shall be informed of the designated individual and deputy(s), including contact details should any changes occur.
- 5.2.7 A full inspection and maintenance programme shall be carried out on any furnace that may have been temporarily out of operation prior to bringing it back into operation. A summary of this shall be provided to the Regulator as part of the notification as required by condition 1.1.2 of this permit.
- 5.2.8 A formal structure shall be held on site, and be made available upon request by the Regulator, that is in place to clarify the extent of relevant employee's responsibility with regard to the control of the process and environmental impacts.

5.3 Training

- 5.3.1 Staff at all levels shall receive the necessary training concerning control of emissions to the environment including an awareness of operating procedures in relation to their duties. This shall include awareness of the regulatory implications of the permit and of all potential environmental impacts under normal and abnormal circumstances. Staff shall be aware of the procedures for dealing with a breach of the permit conditions, recording of incidents and for the prevention of accidental emissions and the actions to be taken when accidental emissions occur. Training needs shall be reviewed on an annual basis and also as part of the induction programme for new operatives involved in operations covered by this permit.
- 5.3.2 The skills and competencies necessary for key posts (which may include contractors and those purchasing equipment and materials) shall be documented and records of training needs and training received for these posts. This shall then be reviewed on a 6 monthly basis.
- 5.3.3 Contractors shall be advised of the relevant procedures to be followed in relation to carrying out duties on site and for control of emissions to the environment.

5.4 Documentation

- 5.4.1 All documentation and records kept in compliance with Condition 9. 1, that being the installation log, shall:-
- i) be made available for inspection by the Regulator at any reasonable time;
 - ii) be supplied to the Regulator on demand and without charge;
 - iii) be legible;
 - iv) be made as soon as reasonably practicable;
 - v) indicate any amendments that have been made and shall include the original record wherever possible; and
 - vi) be retained at the Permitted Installation, or other agreed location agreed by the Regulator in writing, for a minimum period of four years from the date when the records were made, unless otherwise agreed in writing.
- 5.4.2 The Operator shall respond to any Information Notice served in respect of the installation for the purposes of complying with the obligation to report pollutant releases and off-site waste transfers pursuant to the directly applicable EU duty in accordance with Article 5 of EC Regulation No 166/2006 concerning the establishment of a European Pollutant Release and Transfer Register.

5.5 Notification

- 5.5.1 The Operator shall give written notification as soon as practicable prior to any of the following:-
- (i) permanent cessation of the operation of all or part of the Permitted Installation;
 - (ii) cessation of operation of all or part of the Permitted Installation for a period likely to exceed one year; and
 - (iii) resumption of the operation of part or all of the Permitted Installation after a cessation notified under Condition 5.5.1.(ii)above.
- 5.5.2 The Operator shall notify the matters to the Regulator in writing within 14 days of their occurrence:-
- i) any change in the Operators trading name, registered name or registered office address;
 - ii) any change of particulars of the Operators ultimate holding company (including details of an ultimate holding company where an Operator has become a subsidiary)
 - iii) any steps taken with a view to the Operator going into administration, entering into a company voluntary arrangement or being wound up.

5.6 Best Available Techniques (BAT)

- 5.6.1 The best available techniques shall be used to prevent or, where that is not practicable, reduce emissions from the installation in relation to any aspect of the operation of the installation which is not regulated by any other condition of this permit.

6.0 Raw Materials

6.1 Raw Materials Selection

- 6.1.1 The Operator shall maintain an inventory of raw materials and chemicals used for the various activities carried out at the installation. The inventory shall also state the quantities used (in tonnes) of each material listed.
- 6.1.2 The inventory, as required by Condition 6.1.1 above, shall be reviewed annually. The review shall include investigating potential alternative materials that will have less environmental impact. Any such materials so identified shall become routinely used within the review period.
- 6.1.3 All records pertaining to the inventory and reviews thereof, required by Conditions 6.1.1 and 6.1.2 above, shall be maintained for a period of not less than four years. These records shall form part of the installation log kept in accordance with Condition 9.1.
- 6.1.4 Quality checks shall be made on raw materials prior to the material being used in the batch, to ensure that it meets the required specification to minimize any potential environmental impact.

6.2 Raw Materials Handling, Storage, Mixing and Transfer

- 6.2.1 Soda ash, dolomite, felspar, sodium sulphate, calumite and limestone shall be delivered to site in enclosed tankers. The material shall be blown into storage silos.
- 6.2.2 The Operator shall check that there is sufficient capacity in the storage silos prior to the delivery of raw materials taking place. This check shall be recorded as part of the installation log.
- 6.2.3 Storage silos shall be vented to dalmatic filtration units. The filters shall be of a sufficient size so as to prevent visible emissions and shall be vented within the building. During filling operations the silos shall not be charged at a rate exceeding that prescribed by the filter manufacturer such that it will cause any visible emissions of material from any part of the pipework, transfer lines, silo or its filters.

In the event of arrestment plant failure or leakage of particulate matter the delivery shall cease immediately. No further deliveries shall take place until appropriate corrective action has been taken to return the arrestment plant etc. back to its correct working order. Details of the plant failure and particulate matter leakage, including corrective action taken, shall be recorded in the installation log as detailed in condition 9.1 of this permit.

- 6.2.4 The dalmatic filters fitted to the storage silos shall be serviced on a 6 monthly basis, as in accordance with the Environmental Management System required by condition 5.1.1.
- 6.2.5 Visual assessments shall be undertaken during bulk deliveries to the storage silos, particular attention must be paid during the first and last five minutes of delivery.
- 6.2.6 Tanker transfer lines must be securely connected to the tanker discharge point and the silo inlet point/storage tank before the delivery commences. During delivery, tankers shall be vented at such a rate so as to prevent over-pressurisation of the silos. Tanker drivers shall be informed of the correct procedure to be followed. The extent of any emission and the steps taken to rectify the emission shall be recorded.
- 6.2.7 The seating of pressure relief valves, where fitted to silos, shall be checked at least once per week, or before a delivery takes place. A record of these checks shall be made in the installation log as detailed by condition 9.1 of this permit.
- 6.2.8 All external spillages of dry and potentially dusty materials shall be cleaned up immediately using either a water washing system or a vacuum cleaner.
- 6.2.9 Sand shall be delivered wet to the installation by covered trucks or by rail. The wet sand shall be stored in covered bays prior to discharge via conveyors, which are enclosed on the top and sides, to the enclosed concrete silo.
- 6.2.10 Extracted air from local extract systems used to control dust in areas where drums/bags are handled or bags are split shall be filtered, and buildings where such operations are undertaken shall be designed such that entrances and vents will as far as possible not be the source of fugitive emissions.
- 6.2.11 Any faults or defects that could lead to emissions to the external atmosphere shall be recorded, along with the action taken to rectify that fault or defect.
- 6.2.12 Foreign cullet shall be delivered wet to the installation by covered trucks. The cullet shall be stored in the cullet square in the partly enclosed storage bays which shall be designed so as to minimise wind whipping.
- 6.2.13 The foreign cullet shall be transferred to the furnace bunkers by wagon or mechanical shovels. Care shall be taken when transferring foreign cullet on site. This shall include ensuring that drop heights are kept to a minimum and that wagons/shovels aren't overfilled. The foreign cullet shall then be transferred from the storage bunker to the furnace via the enclosed conveyor system.
- 6.2.14 The crushing and grinding of recycled cullet shall take place within an enclosed area. The in house cullet shall be transferred via internal conveyors to the enclosed storage silo.
- 6.2.15 Bagged raw materials shall only be stored and used within a building.

- 6.2.16 Medium fuel oil and diesel shall be delivered to site in enclosed tankers to the oil and diesel storage tanks.
- 6.2.17 The Operator shall check that there is sufficient capacity in the storage tanks prior to the delivery of oil and diesel taking place. This check shall be recorded in the installation log as required by condition 9.1 of this permit.
- 6.2.18 Tanker transfer lines must be securely connected to the tanker discharge point and the tank inlet point before the delivery commences. Visual observations shall be made during the delivery to ensure there is no leakage from the transfer lines. Deliveries shall cease immediately where there is any leakage of material from transfer lines or connection points and corrective action shall be taken prior to recommencing the delivery. Tanker drivers shall be informed of the correct procedure to be followed. The extent of any emission and the steps taken to rectify the emission shall be recorded.

6.3 Waste Minimisation (optimising the use of raw materials)

- 6.3.1 The Operator shall carry out a waste minimisation audit every year. The methodology used and an action plan for optimising the use of raw materials shall be submitted to the Regulator within 2 months of completion of the audit. In particular the audit shall :-

- seek to reduce waste sent to landfill from batch house operations, and
- seek to further increase the use of recycled cullet.

The waste minimisation audit shall form part of the revised environmental management system required by Condition 5.1.1.

- 6.3.2 Specific improvements resulting from the recommendations of the waste minimisation audit shall be carried out within a timescale approved by the Regulator.
- 6.3.3 The Operator shall maintain a record of waste generation in order to establish internal benchmarks. Assessments shall be made against internal benchmarks to maintain and improve resources efficiency. This shall be made available for inspection by the Regulator.

6.4 Waste Handling, Storage and Destination

- 6.4.1 The Operator shall ensure that all wastes generated from the Permitted Installation are dealt with according to the Waste Management System that Forms part of the Operators EMS.
- 6.4.2 The Waste Management System shall be regularly reviewed and audited, at least annually, to ensure that adequate controls are being implemented to deal with all wastes generated and to identify areas of waste reduction.
- 6.4.3 An inventory shall be maintained that contains information relating to the quantity, nature, origin and destination of all wastes generated. The destination shall include details of wastes that are re-used, recovered, recycled and disposed of. The inventory shall also include details of frequency of collection, mode of transport and treatment methods of any wastes which are disposed of or recovered.

6.4.4 Waste storage areas shall be clearly marked with waste segregation notices, placed in appropriate positions, to ensure the correct segregation of waste material.

6.4.5 All documentation required to comply with the relevant waste regulations shall be maintained at the installation for a minimum period of four years. This documentation shall form part of the installation log kept in accordance with Condition 9.1.

6.5 Water Use

6.5.1 The Operator shall carry out regular reviews and audits of water use, in line with the Operators EMS.

6.5.2 The review and audits of water use, required by Condition 6.5.1 above, shall be used to identify further opportunities to minimise water use and further opportunities to re-use or recycle water.

6.5.3 The documentation relating to reviews and audits of water use shall be kept by the Operator for a minimum period of four years. This documentation shall form part of the installation log kept in accordance with Condition 9.1.

6.5.4 The volume of mains used in the activities shall be directly measured when the installation is operating once a day for at least a fortnight and there after, once a week with an annual exercise taking daily measurements for at least a fortnight. All measurements shall be recorded and the records held on site.

6.5.5 The Operator shall use the information obtained in the water audit to established benchmarks. The Operator shall keep records of such benchmarks and make measurement against them to reveal whether the process is being maintained “in control” or to track improvements

6.6 Energy Efficiency

6.6.1 The Operator shall ensure that all plant and equipment within the installation is designed, operated and maintained to optimise the use and minimise the loss of energy.

6.6.2 The Operator shall produce a report on the energy consumed at the Permitted Installation over the previous calendar year, by the 31st January each year. This shall be held on site and made available for inspection by the Regulator.

6.6.3 A copy of the report required in compliance of Condition 6.6.2, above, shall be held on site in compliance with condition 9.1 of this permit.

6.6.4 Energy efficiency at the installation shall be reviewed and audited on an annual basis as part of the Operators EMS as detailed in condition 5.1.1 of this permit.

6.6.5 The documentation relating to the reviews and audits required by Condition

6.6.4, above, shall be maintained by the Operator for a period of not less than four years. This documentation shall form part of the installation log kept in accordance with Condition 9.1.

- 6.6.6 The Operator shall demonstrate compliance with the EU Emissions Trading System (EU ETS).

7.0 Accidents

- 7.1 The Operator shall maintain an accident management plan that identifies the hazards, assesses the risks and identifies the measures required to reduce the risk of potential events or failures that might lead to an environmental impact. The plan shall identify the actions to be taken to minimise these potential occurrences; and the actions to deal with such occurrences so as to limit their consequence. The accident management plan shall be reviewed and audited on an annual basis or as soon as practicable after an accident.
- 7.2 Written procedures for the investigation of incidents and near misses shall be implemented and followed as part of the EMS. Incidents shall be investigated immediately and remedial action taken as soon as practicable. Incidents shall be recorded in the installation log along with actions taken.
- 7.3 The documentation relating to the review and audits of the accident management plan, required for compliance with Condition 7.1 above, shall be kept for a minimum period of four years and shall form part of the installation log, kept in accordance with Condition 9.1.
- 7.4 The Operator shall notify the Regulator, without delay, of any incident or accident that has caused, is causing or has the potential to cause significant pollution to any environmental medium.

8.0 Noise and Vibration

- 8.1 The Operator shall update the study of process operations in order to reassess the predominant noise sources present on site that may have an impact on local sensitive receptors. The Operator shall refer to the noise assessment report submitted as part of the application for a permit (reference number IPPC/A2/01) when assessing the impact of operations on site in relation to sensitive receptors. Following this study the Operator shall submit an action plan to the Regulator detailing any improvements that are deemed necessary along with timescales for actions required. The Operator shall consider the following methods for minimising emissions of noise and vibration from the Permitted Installation as part of the action plan;-
- i) carrying out equipment maintenance, e.g. of fans, pumps, motors, conveyors, etc
 - ii) use and maintenance of appropriate attenuation, e.g. silencers, barriers, enclosures;
 - iii) timing and location of noisy activities and vehicle movements;

- iv) periodic checking of noisy emissions, either qualitatively or quantitatively;
- v) maintenance of building fabric;
- vi) re-siting of equipment, in particular fans, as part of the furnace rebuild programme; and
- vii) replacement of noisy equipment as and when the opportunity presents itself.

This study shall be held on site and made available to the Regulator upon request.

- 8.2 The review and audit of noise as described in condition 8.1 above shall be carried out at least once every two years or in step with operational changes. The Operator shall submit updated proposals within 4 weeks of completion of the review.
- 8.3 The documentation relating to the review and audit of noise and vibration, required for compliance with Conditions 8.1 and 8.2 above, shall be kept for a minimum period of four years and shall form part of the installation log, kept in accordance with Condition 9.1.
- 8.4 The compressor house doors and windows shall be kept closed at all times to prevent unnecessary noise breakout from this building. The Operator shall carry out daily checks to ensure this condition is being enforced.

9.0 Installation Log

- 9.1 The Operator shall maintain an installation log which shall include details of the day to day activities. The log required to be kept by this Condition shall not be construed as being one document.

10.0 Closure and Decommissioning

- 10.1 The site closure and decommissioning plan, as submitted as part of the application for a permit (reference IPPC/A2/01), shall be reviewed at least once every 4 years and the Regulator shall be notified of the results of the review. The plan shall be kept updated as material changes occur.
- 10.2 At such time as the Operator closes and decommissions the installation then the Operator shall ensure that any works necessary to remediate the land to at least the standards identified in the base line survey, as supplied with the Application for this Permit, are carried out.

End of Permit Conditions

Appendix A

Submissions Summary

Report deviation from standard test methods	[prior to any change]
Report breach of W1 Discharge Consent	[within 8 weeks]
Report any change to site condition	[as soon as practicable]
Notification for cessation of all or part of installation	[as soon as practicable]
Notification for cessation that is likely to exceed 1 year	[as soon as practicable]
Notification for resumption of operations	[as soon as practicable]
Notification of name change / address change	[within 14 days]
Notification for change of particulars	[within 14 days]
Notification for going in to administration / wound up	[within 14 days]
Bi-annual Climate Change Levy Certificate	[four weeks from receipt]
Notification of failure to achieve 2 year milestone	[as soon as practicable]
Notification of cancellation of CCLA	[as soon as practicable]
Notification of any incident/accident (pollution)	[immediately]

Interpretations

In relation to this Permit, the following expressions shall have the following meanings:

<i>“Application”</i>	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.
<i>“EP Regulations”</i>	means the Environmental Permitting (England and Wales) Regulations 2010 as amended and words and expressions defined in the EP Regulations shall have the same meanings when used in this Permit save to the extent they are explicitly defined in this Permit.
<i>“Permitted Installation”</i>	means the activities and the limits to those activities described in this Permit.
<i>“Monitoring”</i>	includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, tests, and surveys.
<i>“Regulator”</i>	means any officer of Barnsley Metropolitan Borough Council who is authorised 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(1) of that Act.
<i>“Fugitive Emission”</i>	means an emission to air or water (including sewer) from the Permitted Installation that is not controlled by an emission limit imposed by a condition of this Permit.
<i>“Groundwater”</i>	means all water that is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.
<i>“MCERTS”</i>	means the Environment Agency’s Monitoring Certification Scheme.
<i>“Sewer”</i>	means sewer within the meaning of Section 219(1) of the Water Industry Act 1991.

Explanatory Note

The Environmental Permitting (England & Wales) Regulations 2010 describes the use of “best available techniques” (BAT) for preventing and reducing emissions and the impact on the environment as a whole. For the purpose of the definition;

- (a) “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 in to 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;
- (b) “best” means, in relation to techniques, the most effective in achieving a high general level of protection of the environment as a whole;
- (c) “techniques” include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.

For determining best available techniques special consideration shall be given to the following matters, bearing in mind the likely costs and benefits of a measure and the principles of precaution and prevention –

- 1) the use of low-waste technology;
- 2) the use of less hazardous substances;
- 3) the furthering of recovery and recycling of substances generated and used in the process and of waste, where appropriate;
- 4) comparable processes, facilities or methods of operation which have been tried with success on an industrial scale;
- 5) technological advances and changes in scientific knowledge and understanding
- 6) the nature, effects and volume of the emissions concerned;
- 7) the commissioning dates for new or existing installations;
- 8) the length of time needed to introduce the best available technique;
- 9) the consumption and nature of raw materials (including water) used in the process and the energy efficiency of the process;
- 10) the need to prevent or reduce to a minimum the overall impact of the emissions on the environment and the risks to it;
- 11) the need to prevent accidents and to minimise the consequences for the environment;
- 12) the information published by the Commission pursuant to Article 16(2) of the Directive or by international organisations.

Appeals

Any person who is aggrieved by the conditions attached to a Permit can appeal to the Secretary of State for Environment, Food & Rural Affairs. **Appeals must be received by the Secretary of State no later than 6 months from the date of the decision (the date of the Permit).**

Appeals relating to Prescribed Activities in Wales should be sent to the Secretary of State for Environment, Food & Rural Affairs. The address is as follows :

The Planning Inspectorate
Environment Team, Major & Specialist Casework
Room 4/04 Kite Wing
Temple Quay House
2 The Square
Temple Quay
Bristol
BS1 6PN

Guidance on the appeal procedures is contained in Schedule 6 of the Environmental Permitting (England and Wales) Regulations 2010.

The appeal must be in the form of a written notice or letter stating that the person wishes to appeal and listing the condition(s) which is/are being appealed against. The following five items must be included :

- a] a statement of the grounds of appeal;
- b] a copy of any relevant Application;
- c] a copy of any relevant Permit;
- d] a copy of any relevant correspondence between the person making the appeal ("the appellant") and the council;
- e] a statement indicating whether the appellant wishes the appeal to be dealt with,
 - i. by a hearing attended by both parties and conducted by an inspector appointed by the Secretary of State; or
 - ii. by both parties sending the Secretary of State written statements of their case [and having the opportunity to comment on one another's statements].

At the same time, the notice of appeal and documents [a] and [e] must be sent to the Council, and the person making the appeal should inform the Secretary of State that this has been done.

- An appeal will not suspend the effect of the conditions appealed against; the conditions must still be complied with.
- In determining an appeal against one or more conditions, the Act allows the Secretary of State in addition to quash any of the other conditions not subject to the appeal and to direct the local authority to either vary any of these conditions or to add new conditions.

Appendix B – Site Location Map, Site Plan with Release Points

Annex I

Derogation from the BAT AEL for NO _x emissions from the melting furnace in the container glass sector									
Operator, Location, Permit:	Ardagh Glass Ltd, Burton Road, Monk Bretton – IPPC/A2/01								
BREF:	The Manufacture of Glass								
BAT Conclusions Ref. No.& date:	2012/134/EU - 08/03/2012								
BAT-AEL compliance date:	08/03/2016								
Short description:	The BAT AEL for NO_x, expressed as NO₂, emissions from the melting furnace in the container glass sector are stated as; <table> <tr> <td>Combustion modifications, special furnace designs (Primary Measures)</td><td>500-800 mg/Nm³</td></tr> <tr> <td>Electric melting</td><td><100 mg/Nm³</td></tr> <tr> <td>Oxy-fuel melting</td><td>Not applicable</td></tr> <tr> <td>Secondary techniques</td><td><500 mg/Nm³</td></tr> </table> The Operator has requested a time limited derogation and is proposing to delay compliance with the Primary measures BAT AEL of 500-800 mg/Nm³ on each until 2022.	Combustion modifications, special furnace designs (Primary Measures)	500-800 mg/Nm ³	Electric melting	<100 mg/Nm ³	Oxy-fuel melting	Not applicable	Secondary techniques	<500 mg/Nm ³
Combustion modifications, special furnace designs (Primary Measures)	500-800 mg/Nm ³								
Electric melting	<100 mg/Nm ³								
Oxy-fuel melting	Not applicable								
Secondary techniques	<500 mg/Nm ³								
Has operator claimed that releases are insignificant?	No								
Derogation criteria:	Technical characteristics								
Duration of derogation:	Time limited to 01/12/2022								

Summary of the Derogation granted

The Operator requested a time limited derogation from BAT 5.2.2 the BAT AEL for NO_x, expressed as NO₂, emissions from the melting furnace in the container glass sector which are; Combustion modifications, special furnace designs (Primary Measures) – 500-800 mg/Nm³, Electric melting <100 mg/Nm³, Oxy-fuel melting – Not applicable and Secondary techniques - <500 mg/Nm³ on the basis of technical characteristics.

The Operator has also requested a long term derogation for BAT 5.2.3 the BAT AEL for SO_x emissions from the melting furnace in the container glass sector which has been considered separately because this is not time limited and is controlled by different abatement techniques.

In their application the Operator considered 3 options for meeting the BAT AEL. They have proposed to install primary measures to furnaces B1, B3, B4 so that they are compliant with the 500-800mg/Nm³ BAT AEL over a furnace re-build schedule until 2022.

Barnsley Metropolitan Borough Council has reviewed the application and concluded;

- That the application is based on the technical characteristics and is within the scope of derogations allowed under article 15(4) of the Industrial Emissions Directive and is based on;

- 1) The recent history of pollution control investment in the installation in respect of the pollutant for which the derogation is sought
 - 2) The general investment cycle for a particular type of installation
 - 3) The practicability (particularly bearing in mind Health and Safety and other relevant legal obligations) of interrupting the activity so as to install improved emission control upon the pollutant
 - 4) The effect of reducing the excess emission(s) upon other pollutant emissions, the energy efficiency, water use or waste arisings from the installation as a whole
- That the Operator has provided a credible argument that the increased costs for achieving the BAT AEL are linked to the technical characteristics;

The Operator states that to install primary measures by 2017 to furnaces B1, B3 and B4 so that they are compliant with the 500-800 mg/Nm³ BAT AEL (2017 completion date is used as this is the earliest it would be possible to complete all the works required) is not a feasible possibility.

SCR at the Installation has been dismissed due to disadvantages outlined in the Glass BREF note which include; Technical issues still to be resolved with the technology, ammonia is consumed and partly emitted to air, ammonia production, environment and safety concerns associated with storage and handling, energy consumed by the system, relatively high capital costs, relative cost benefit erosion by developments of other less expensive techniques, concerns over catalyst lifetimes, possible interaction between SCR catalyst and other emissions (eg. SO₂) and the BREF note states that SCR is a relatively expensive technique compared to primary measures (in many applications where unabated emissions were below 2500mgNm³ SCR was not considered by the Glass industry to be the most cost effective technique for NO_x emissions reduction).

The Operators preferred option (and Derogation request) is to install primary measures to furnaces B1, B3, B4 so that they are compliant with the 500-800mg/Nm³ BAT AEL over a furnace re-build schedule until 2022.

- That the Operator has demonstrated that the costs of achieving the BAT AEL of 500-800mg/Nm³ as soon as possible (2017) are disproportionate to the environmental benefits.

The annual emissions of NO_x from the activity are currently 967 tonnes per year and these would reduce to at least 657 tonnes per year using primary measures if the BAT AEL was met in accordance with the timeline set by the IED. The Operators proposal will mean that NO_x emissions from the Installation will reduce as Furnace re-builds take place and from 2022 they will have reduced to 657 tonnes per year.

The Operator has produced a Cost Benefit Analysis which has compared 4 different options to meet the BAT AEL's for control of NO_x (expressed as NO₂) emissions from the melting furnace in the container glass sector. The costs that have been used are similar to those mentioned in the Glass BREF and are similar to those submitted to other Regulators by other Operators within the Container Glass sector. The 4 different options given are;

Option 1

Do nothing – this is dismissed as not being viable moving forward.

Option 2

Install primary measures by 2017 to furnaces B1, B3 and B4 so that they are compliant with the 500-800 mg/Nm³ BAT AEL. A 2017 completion date is used as this is the earliest it would be possible to complete all the works required.

The Net Present Value for this option is -£47.7 million and according to Environment Agency Economist guidance should be dismissed as it is a negative figure.

It should also be noted that several other Operators are in a very similar situation and there are doubts whether there are sufficient resources in terms of equipment, materials and human resource to upgrade all different Operators' furnaces within Europe.

Option 3

Install primary measures to furnaces B1, B3, B4 so that they are compliant with the 500-800mg/Nm³ BAT AEL over a furnace re-build schedule until 2022.

The Net Present Value for this option is £1.5 million and according to Environment Agency Economist guidance should be considered as it is a positive figure.

Option 4

Install SCR so that they are compliant with the <500 mg/Nm³ BAT AEL.

The Net Present Value for this option is -£2 million and according to Environment Agency Economist guidance should be dismissed as it is a negative figure. This is because the costs of the option are greater than the benefits.

Following the Operators submission of their Cost Benefit Analysis DEFRA published, on the 12th September 2015, new air quality damage costs. The NO_x damage costs are substantially higher than the ones previously used as they are approximately 13 times higher.

In summary, the new cost benefit analysis ranks the 4 options as follows;

- 1st – Install Secondary measures as soon as possible (2017)
- 2nd – Install Primary measures in line with the proposed re-build schedule
- 3rd – Install Primary measures as soon as possible (2017)
- 4th – Business as usual, no abatement at all

As mentioned earlier it is felt secondary abatement should be dismissed due to disadvantages outlined in the Glass BREF note which include; Technical issues still to be resolved with the technology, ammonia is consumed and partly emitted to air, ammonia production, environment and safety concerns associated with storage and handling, energy consumed by the system, relatively high capital costs, relative cost benefit erosion by developments of other less expensive techniques, concerns over catalyst lifetimes, possible interaction between SCR catalyst and other emissions (eg. SO₂) and the BREF note states that SCR is a relatively expensive technique compared to primary measures (in many applications where unabated emissions were below 2500mgNm³ SCR was not considered by the Glass industry to be the most cost effective technique for NO_x emissions reduction).

With this in mind, when considering the Cost Benefit Analysis the preferred option of installing primary measures on the proposed re-build schedule would be the highest

ranked considered option and should be the one carried out by the Operator as it has a higher net present value.

- The short and long term Air Quality Standards for NO₂ are achieved within the immediate vicinity of the installation.
Barnsley MBC's no. 5 air quality management area (AQMA) is located ~ 1 km SW of the installation. This AQMA was declared in 2008, due to exceedance of the annual average objective for NO₂, primarily due to traffic emissions. The process contribution at this location has been modelled within the BAT assessment as 0.34 µg/m³ which is close to 1% and therefore the process contribution is deemed to be insignificant, as traffic emissions are the major cause of exceedance in this AQMA.

Barnsley Metropolitan Borough Council is therefore minded to allow this derogation request subject to the following conditions;

- 1.2.3 The emission limits for the following release points shall be achieved by the dates specified within the Table 3 below;

TABLE 3			
Release Point	Emission	Limit	Compliance Date
A1, A2	Oxides of nitrogen (NO _x)	800 mg/Nm ³	1 st December 2022 To be agreed with the Regulator
A1, A2	Oxides of Sulphur	500 mg/Nm ³	

All pollution concentrations shall be expressed at reference conditions of 273k and 101.3kPa. The concentration of pollutants in the furnace emissions shall be normalised to 8% oxygen when measured dry.

- 1.3.1 The Operator shall undertake measures relating to the primary methods for reducing oxide of nitrogen emissions during furnace shutdowns and repairs at the furnace rebuild dates stated in the site BAT assessment document reference; Ardagh Glass Ltd, BAT Assessment Barnsley 47063542 LERP0001 August 2015.
- 1.3.3 Emissions from the glass melting furnaces B1, B3 and associated coating processes shall be exhausted to atmosphere through stack emission point A1 in such a way as to ensure that the emission limits for Oxides of nitrogen (NO_x) as detailed in Table 2 of this permit are being complied with.
- 1.3.4 Emissions from the glass melting furnaces B4, B7 and associated coating processes shall be exhausted to atmosphere through stack emission point A2 in such a way as to ensure that the emission limits for Oxides of nitrogen (NO_x) as detailed in Table 2 of this permit are being complied with.

Annex II

Derogation from the BAT AEL for SO_x emissions from the melting furnace in the container glass sector.	
Operator, Location, Permit:	Ardagh Glass Ltd, Burton Road, Monk Bretton – IPPC/A2/01
BREF:	The Manufacture of Glass
BAT Conclusions Ref. No.& date:	2012/134/EU - 08/03/2012
BAT-AEL compliance date:	08/03/2016
Short description:	The BAT AELs for SO_x, expressed as SO₂, emissions from the melting furnace in the container glass sector are stated as; <200–500 mg/Nm³ (Natural gas) <500-1200 mg/Nm³ (Fuel oil) The Operator has requested a long term derogation from the BAT AEL of 200–500 mg/Nm³ (Natural gas). The Operator has proposed that they should have an emission limit value (ELV) of 700 mg/Nm³.
Has operator claimed that releases are insignificant?	No
Derogation criteria:	Technical characteristics
Duration of derogation:	Time limited to 01/03/2018 though there is the potential to grant a Long term (not time limited) derogation.

Summary of the Derogation granted

The Operator requested a long term derogation from BAT 5.2.3 the BAT AEL for SO_x, expressed as SO₂, emissions from the melting furnace in the container glass sector which is <200–500 mg/Nm³ (for furnaces using natural gas) on the basis of technical characteristics. The Operator has also requested a time limited derogation from BAT 5.2.2 the BAT AEL for NO_x, expressed as NO₂, emissions from the melting furnace in the container glass sector which has been considered separately because this is a time limited derogation request and is controlled by different abatement techniques.

In their application the Operator considered 1 option for meeting the BAT AEL. Their proposal is to implement business as usual and reject achieving the BAT AEL option. Barnsley Metropolitan Borough Council has reviewed the application and concluded;

- That the application is based on the technical characteristics and is within the scope of derogations allowed under article 15(4) of the Industrial Emissions Directive and is based on;
 - 1) The configuration of the plant on the site, making it more technically difficult and costly to comply
 - 2) The effect of reducing the excess emission(s) upon other pollutant emissions, the energy efficiency, water use or waste arisings from the installation as a whole
 - 3) The recent history of pollution control investment in the installation in respect of the pollutant(s) for which the derogation is sought
- That the Operator has provided a credible argument that the increased costs for achieving the BAT AEL are linked to the technical characteristics;

It is important to note that the Installation already has the appropriate abatement equipment fitted, the Derogation request relates to the operation of the abatement equipment.

The Operator has identified that in table 9 of the BAT conclusions it states that “values reported in the table may be difficult to achieve in combination with filter dust recycling and the rate of recycling external cullet”. The Operator argues that they will not be able to achieve the BAT AEL without additional costs, which relate to the extra waste generated, extra raw materials required and extra lime required for the abatement plant. They currently recycle all filter dust back into the batch, which they state is BAT for their Installation.

- That the Operator has demonstrated that the costs of achieving the BAT AEL are disproportionate to the environmental benefits;

The annual emissions of SO_x from the activity are currently 527 tonnes per year and these would reduce to at least 410 tonnes per year if the BAT AEL was met in accordance with the timeline set by the IED.

The Operators proposal will mean that the annual emissions of SO_x will remain at 527 tonnes per year.

The Operator has produced a Cost Benefit Analysis, using the Environment Agency's CBA tool, which has compared 2 different options to meet the BAT AEL's for control of SO_x (expressed as SO₂) emissions from the melting furnace in the container glass sector. The costs that have been used are similar to those submitted to other Regulators by other Operators within the Container Glass sector. The 2 different options given are;

Option 1

The granting of a full derogation with an emission limit of 700 mg/Nm³.

Option 2

Achieve the emission limits within the BAT AEL of 200-500mg/Nm³.

The Net Present Value for this option is -£0.2 million and according to Environment Agency Economist guidance should be dismissed as it is a negative figure. This is because the costs of the option are greater than the benefits.

We also are aware that all container glass manufacturers within the UK have submitted the same derogation request based on the same justification. These requests are being processed by different regulators including Local Authorities, SEPA and DOENI and it is important that consistency is achieved throughout the UK, so it is likely the same decision will be adopted by all the Regulators.

It is important to note that Environment Agency guidance for carrying out Cost Benefit Analysis suggests that assessing only 2 options is not good practice. This would add support for requiring further options to be considered such as recycling 25% filter dust, recycling 50% filter dust, recycling 75% filter dust or recycling 90% filter dust.

- That there would be no effects to short term EALs for SO₂ associated with the derogation request and there are no long term EALs for SO₂ with respect to human health. The emissions of SO₂ associated with the derogation request will not affect any sites of heritage, landscape or nature conservation, and/or protected species or habitat. SO₂ concentrations at the nearest SSI to the installation show compliance with the long term EAL for protection of ecosystems.

Barnsley Metropolitan Borough Council is therefore minded to temporarily allow this derogation request (for a 2 year period) subject to the following conditions;

1.2.3 The emission limits for the following release points shall be achieved by the dates specified within the Table 3 below;

TABLE 3			
Release Point	Emission	Limit	Compliance Date
A1, A2	Oxides of nitrogen (NO _x)	800 mg/Nm ³	1 st December 2022
A1, A2	Oxides of Sulphur	500 mg/Nm ³	To be agreed with the Regulator

All pollution concentrations shall be expressed at reference conditions of 273k and 101.3kPa. The concentration of pollutants in the furnace emissions shall be normalised to 8% oxygen when measured dry.

- 1.5.1 Emissions from the glass melting furnaces B1 and B3 shall be exhausted to atmosphere through stack emission point A1, via the sulphur dioxide scrubbing unit. The scrubbing unit shall be designed and operated in such a way as to ensure that the emission limits for sulphur dioxide as detailed in Table 2 of this permit are being complied with.
- 1.5.2 Emissions from the glass melting furnace B4 and B7 shall be exhausted to atmosphere through stack emission point A2, via the sulphur dioxide scrubbing unit. The scrubbing unit shall be designed and operated in such a way as to ensure that the emission limits for sulphur dioxide as detailed in Table 2 of this permit are being complied with.
- 1.5.3 The Operator shall undertake a review of the recycling of flue gas filter dust back into the furnace. The review shall be recorded and, as a minimum, include the following;
- i) The cost per tonne of abating SO_x emissions during current operations
 - j) The cost per tonne, if feasibly possible, of abating SO_x emissions to meet the limit of 500mg/Nm³
 - k) Chemical and physical characterisation of the flue dust generated in EP1 and EP2
 - l) The waste classification of the flue dust, including what components, if any, trigger a classification as hazardous waste
 - m) A sulphur balance for each furnace, and for each glass type produced, to investigate the link between recycling rates of filter dust and the associated value for SO₂
 - n) The identification of alternative uses/outlets for any flue dust in excess of the recycle rates determined in e). This should be undertaken in accordance with the Waste Framework Directive i.e., in order of priority should consider: reuse, recycling, recovery or, where that is technically and economically impossible, disposal, while avoiding or reducing any impact on the environment
 - o) A description, for each furnace, of the options for flue dust recycling into the furnace in combination with treatment and/or disposal offsite of excess filter dust, including a cost benefit analysis for each option and the timescale for implementation
 - p) A full BAT assessment, using the information obtained in a) to g) above, identifying the operators proposed option for flue dust recycling, treatment and/or disposal in order to meet the BAT AEL value for SO₂ of 500mg/m³

The full details and conclusions of the review shall be submitted in writing to the regulator no later than the 1st March 2018.