



# Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

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Knauf Insulation Limited

Ravenhead Insulation Works  
Stafford Road  
St. Helens  
Merseyside  
WA10 3LZ

**Variation application number**

EPR/BQ4335IC/V009

**Permit number**

EPR/BQ4335IC

# Ravenhead Insulation Works

## Permit number EPR/BQ4335IC

### Introductory note

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

Under the Environmental Permitting (England & Wales) Regulations 2016 (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.

This permit variation comprises of the following changes to site operation:

- Rebuilding and expansion of the melting furnace to increase glass production from 251 tonnes/day to 330 tonnes/day (31%) with associated expansion of the low density (LD) production line to increase the production throughput and allow production of products with higher thermal performance. As of Q1 2026, the HD production line will be mothballed for a number of years.
- Installation of new ancillary systems including more efficient bagging machines and an additional line.
- An increase in installation boundary allowing more land for non-process activities such as final product storage.
- Introduction of emission point, W1, which is uncontaminated surface water discharged into the on-site Ravenhead Dam.
- Removal of emission points from a building that has been demolished (A110 – A116).
- Redefinition of 'abnormal operating conditions' within the permit.

The permit has been reviewed against the requirements of the Medium Combustion Plant Directive (MCPD) for 2025 (and 2030), and relevant conditions and monitoring requirements have been added.

There is one MCP present:

- Back-up generator (gas oil) with 1.371MWth input which started operation in 2024 (operating as a limited operating hours plant).

There is also a back-up generator with thermal input <1MWth which is not an MCP:

- Back-up generator (gas oil) with 0.513MWth input which started operation in 2005.

The main purpose of the activity at the installation continues to be:

- Manufacture of light density glass mineral roll, high density cavity wall insulation slabs and loose fibre products for use as a thermal and acoustic insulation material in the building industry, in a plant with a typical production capacity of 120,000 tonnes per annum after the increased production realised by installation of the expanded glass furnace. The operation produces glass mineral wool product in a multi stage process; batch mixing, glass melting, fiberising, forming, curing, cooling, cutting and packaging.

The first stage involves melting glass, made from batch materials (sand, soda ash, dolomite, limestone and minerals containing boron and aluminium together with internal and external cullet) in a furnace and then processing the molten glass into fibres. External cullet is processed glass recycled from various sources including bottles, automotive glass and domestic glass. Batch materials are delivered by road tanker and pneumatically transferred to storage silos contained within the Batch House Building. External (recycled) cullet is brought into site by road tanker and off-loaded using a conveyor system. The batch materials are blended with the cullet within the Batch House building before being conveyed to the furnace building. The dust arising from materials handling is minimised by extraction and filtering systems which are also fitted with continuous monitors to prevent over filling and spillage.

Once conveyed to the furnace building the blended materials are transferred to the furnace installed in 2024 and permitted by variation notice, EPR/BQ4335IC/V009. A stream of molten glass flows onto the 3 lines where it is fiberised in specially designed rotary centrifuge spinners that produce fine glass fibres.

Except for loose fibre products, binder is applied to the fibres prior to a forming process which gives a glass mineral wool mat with a nominal thickness ranging from 50mm to 300mm, although additional sizes may be produced subject to customer requirements. When rolls or slab insulation is made, the mineral wool is shaped as it is heated in a curing oven at around 300<sup>o</sup> C which sets the binder.

After curing, the products are cooled then trimmed to the final dimensions. Various facings can be applied as required or the product may be fully encapsulated in polythene and the products are then packed ready for despatch.

Emissions to atmosphere may arise during each stage of the process. Emissions from the melting stage result from the combustion products and particulates generated in the glass furnace. Waste gas flows from the furnace are passed through an electrostatic precipitator abatement plant prior to being emitted to atmosphere via a 61m stack.

Emissions from the downstream forming, curing and cooling stages, consist of particulates and volatile organic materials used in the binder. These gas streams are passed through multistage abatement systems (Wet electrostatic precipitator or a series of cyclones and water traps) before being emitted to atmosphere via either a 61m, 65m or 75m stack, depending on the production line.

Edge trimming waste is either recirculated back into the product or collected with any off-quality product and is shredded, compacted into a bale and recycled off site by 3<sup>rd</sup> parties or in exceptional circumstances, sent to landfill via a waste contractor.

The operation includes a cascade water reuse system with fresh water entering the cooling towers and wet electrostatic precipitators then being reused at various stages of the process and as make up for the binder with minimal quantities being discharged to the trade effluent sewer for final treatment at the urban wastewater treatment works.

This permit allows aqueous discharges to the public sewer as well as to controlled water (Ravenhead Dam). Water from the dam is extracted, used for cooling various pumps and returned.

The installation site is located at NGR: SJ 500 943 to the southwest of St Helens, Lancashire, just off the A58 Prescott Road, and is situated within a mixed light industrial and residential area. Small areas of open parkland, woodland and farmland are also present in the surrounding areas.

Areas of housing are located in close proximity to the site at Factory Row, Ravenhead Road and The Shires.

The schedules specify the changes made to the permit.

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

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application BQ4335IC (EPR/BQ4335IC/A001)	Received 11/07/2002	
Permit BQ4335IC (EPR/BQ4335IC)	Determined 05/02/2003	
Variation Application FP3436FL (EPR/BQ4335IC/V002)	Received 19/05/2005	
Variation FP3436FL Issued (EPR/BQ4335IC/V002)	Determined 03/08/2005	
Variation Application RP3333XC (EPR/BQ4335IC/V003)	Received 23/10/2007	
Variation RP3333XC Issued (EPR/BQ4335IC/V004)	Determined 23/04/2008	
Variation Application QP3530GV (EPR/BQ4335IC/V004)	Received 22/08/2008	
Variation QP3530GV further information request (EPR/BQ4335IC/V004)	Received 22/09/2008	
Variation QP3530GV Issued (EPR/BQ4335IC/V004)	Determined 24/02/2009	
Variation Application EPR/BQ4335IC/V005	Received 27/08/2009	
Schedule 5 Notice	Received 23/10/2009	
Variation EPR/BQ4335IC/V005	Determined 03/12/2009.	
Variation EPR/BQ4335IC/V006	Duly made 26/11/2012	
Schedule 5 Notice dated 27/11/2012	Received 03/01/2013	
Variation Notice EPR/BQ4335IC/V006 Issued	Determined 16/01/2013	
Regulation 60 notice issued	18/12/2013	
Reply to Regulation 60 notice	30/05/2014	
Additional Response to Regulation 60 Notice received	09/10/2014 and 09/01/2015	
Environment Agency Initiated Variation EPR/BQ4335IC/V007 determined	30/03/2015	Varied and consolidated permit issued in modern condition format, EPR/BQ4335IC.
Variation EPR/BQ4335IC/V008	24/04/2023	Variation application submitted
Variation EPR/BQ4335IC/V008	15/06/2023	Variation application returned to applicant as not duly made
Application received EPR/BQ4335IC/V009	Duly made 08/03/2024	
Permit Review (Medium Combustion Plant Directive) Regulation 61 notice dated 22/05/2024 sent to operator	22/05/2024	Regulation 61 Notice requiring information for statutory review of permit to incorporate changes delivered in Medium Combustion Plant Directive (MCPD).

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Additional information received Response to Schedule 5 Notice dated 30/05/2024	28/06/2024, 12/07/2024,	<ul style="list-style-type: none"> <li>- Compliance with Manufacture of Glass, BAT-conclusions.</li> <li>- Demonstration how existing abatement will manage increased pollutant loadings.</li> <li>- Use of new area of land within installation boundary and management of surface water.</li> <li>- Prevention of dust emissions.</li> <li>- Justification why electric arc furnaces are not viable for large scale melting.</li> <li>- Control over CO and NOx emissions by use of increased numbers of electric heaters.</li> <li>- Demonstration of improvements in energy efficiency by removing the plate separating the oven zones.</li> <li>- Storage areas and bunding.</li> <li>- Environmental impact from breakdowns of abatement equipment handling increased pollutant loads.</li> <li>- Noise and fire management.</li> <li>- Discharges to Ravenhead Dam.</li> <li>- Air Quality Assessment.</li> <li>- Medium Combustion Plant information.</li> </ul>
Additional information received Response to Schedule 5 Notice dated 30/05/2024	Regulation 61 Notice response received 28/06/2024	Information required in Regulation 61 Notice.
Additional information received	21/08/2024	Updated air quality modelling files including those for redefined abnormal operation.
Additional information received	11/09/2024	Updated Air Quality Assessment.
Additional information received Response to Schedule 5 Notice dated 30/05/2024	11/09/2024	<ul style="list-style-type: none"> <li>- Compliance with BAT11 from Manufacture of Glass BAT-Conclusions.</li> <li>- Abatement of emissions in compliance with BAT-AELs.</li> <li>- Control of CO<sub>2</sub> and NOx.</li> <li>- Failure scenarios of wet and dry electrostatic precipitators.</li> </ul>
Additional information received	11/09/2024	- Release of process effluent to sewer.
Additional information received	23/10/2024	<ul style="list-style-type: none"> <li>- Supplementary Fire Fighting Water Report.</li> <li>- Updated Environmental Risk Assessment (Fire Fighting Water Management).</li> <li>- Updated Air Quality Assessment</li> </ul>
Additional information received	05/02/2025; 10/02/2025; 14/02/2025	Scope of further noise monitoring and assessment.
Additional information received	25/03/2025	<ul style="list-style-type: none"> <li>- Confirmation that medium combustion plant will operate as a limited operating hours plant.</li> <li>- Update on revised method statement for updated noise assessment.</li> </ul>

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Additional information received	06/06/2025	Report of noise monitoring and assessment survey carried out in accordance with revised method statement.
Additional information received	20/02/2026	Operation of 0.513MW generator.
Additional information received	27/02/2026	Site plan and process shut down control.
Additional information received	05/03/2026	Confirmation of site plan
Variation determined and consolidation issued EPR/BQ4335IC	10/04/2026	Varied and consolidated permit issued.

End of introductory note

## Notice of variation and consolidation

### The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

**Permit number**

EPR/BQ4335IC

**Issued to**

**Knauf Insulation Limited** (“the operator”)

whose registered office is/ whose principal office is

**Stafford Road**

**St. Helens**

**Merseyside**

**WA10 3LZ**

company registration number 01926842

to operate a regulated facility at

**Ravenhead Insulation Works**

**Stafford Road**

**St. Helens**

**Merseyside**

**WA10 3LZ**

to the extent set out in the schedules.

The notice shall take effect from 10/04/2026

Name	Date
Sandra Cavill	10/04/2026

Authorised on behalf of the Environment Agency

## Schedule 1

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

- Table S1.2 as referenced by conditions 2.3.1 and 2.3.2 was varied to include new Operating Techniques relevant to the operation of new equipment and processes authorised by this permit variation.
- Table S1.3 as referenced by condition 2.4.1 was varied to include seven new Improvement Conditions (IC21 – IC27) relevant to the operation of new equipment, processes and land authorised by this permit variation.
- Table S3.1 as referenced by conditions 3.1.1, 3.1.4, 3.5.1, 3.5.4 and 3.5.5 was varied to remove emission points A110 – A116 (roof vents – wash water) and remove emission limit values that were applicable only until 08/03/2016.
- Table S3.2 as referenced by conditions 3.1.1, 3.1.3, 3.1.4, 3.5.1 and 3.5.5 was varied to add release point, W1 and remove unnecessary footnotes.
- Table S4.1 as referenced by condition 4.2.3 was varied to add reporting for W1 and update the beginning of the reporting periods.
- Schedule 6 as referenced by condition 4.1.1 was varied to include a new definition of abnormal operation on the wet electrostatic precipitator.
- Schedule 7 as referenced by condition 2.2.1 was varied to include a new site plan showing new areas of land to be added to the installation boundary.

The following conditions were varied as a result of an Environment Agency initiated variation:

- Conditions 4.3.2 and 4.4.2 were varied to reflect the wording in the current permit template.
- Condition 2.4.2 (a) was varied to correct an error in the wording.
- Condition 4.2.2 was varied to use the wording in the current standard permit template for permits that do not include the multi-operator installation conditions
- Condition 4.3.2 was varied to reflect the current standard permit template.
- Table S1.1 as referenced by conditions 2.1.1, 2.3.10 and 3.5.6 was varied to include new Directly Associated Activities for MCP and non-MCP boilers and renumber all operations in the Table as AR1-AR8.
- Table S2.1 as referenced by condition 2.3.3 was varied to include the maximum sulphur content of gas oil.
- Table S3.1 as referenced by conditions 3.1.1, 3.1.4, 3.5.1, 3.5.4 and 3.5.5 was varied to add emission points A119 and A120 for MCP and non-MCP boilers.
- Table S4.1 as referenced by condition 4.2.3 was varied to add reporting for A119.
- Schedule 5 as referenced by condition 4.3.2 was varied to reflect the current permit template.
- Schedule 6 as referenced by condition 4.1.1 was varied to include definitions relevant to the medium combustion plant directive and update other definitions in accordance with the current permit template.

The following conditions were added following an Environment Agency initiated variation:

- Conditions 2.3.10, 3.5.6, 3.5.7, 4.1.3, 4.2.6, 4.3.8 are added as a result of the permit review against the Medium Combustion Plant Directive.

2.3.10 For the following activities referenced in Table 1.1.1 (AR7):

- (a) the operator must keep periods of start-up and shut down of the combustion plant as short as possible.
- (b) there shall be no persistent emission of 'dark smoke' as defined in section 3(1) of The Clean Air Act 1993.

3.5.6 For the following activities referenced in Schedule 1 Table S1.1 (AR7):

- (a) For existing MCP monitoring measurements shall be carried out before the relevant compliance date or within four months of the issue date of the permit whichever is the later.

- 3.5.7 Monitoring of MCP shall not take place during periods of start-up or shut down.
- 4.1.3 The operator shall maintain a record of the type and quantity of fuel used and the total annual operating hours for each MCP.
- 4.2.6 The operator shall maintain a record of the type and quantity of fuel used and the total annual operating hours for each MCP.
- 4.3.8 The operator shall notify the Environment Agency, as soon as is practicable, in writing of any change of MCP at the specified location.
- Conditions 2.3.8 and 2.3.9 on the disposal of waste arising from the activities were added to reflect the current standard permit template.
- 2.3.8 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to receipt of the waste:
- (a) the nature of the process producing the waste;
  - (b) the composition of the waste;
  - (c) the handling requirements of the waste;
  - (d) the hazardous property associated with the waste, if applicable; and
  - (e) the waste code of the waste.
- 2.3.9 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.
- Condition 4.2.5 on the reporting of waste accepted and removed from site was added to reflect the current standard permit template.
- 4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter, if during that quarter the total amount accepted exceeds 100 tonnes of non-hazardous waste or 10 tonnes of hazardous waste.

## **Schedule 2 – consolidated permit**

Consolidated permit issued as a separate document.

# Permit

## The Environmental Permitting (England and Wales) Regulations 2016

### Permit number

**EPR/BQ4335IC**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BQ4335IC/V009 authorising,

**Knauf Insulation Limited** (“the operator”),

whose registered office is/whose principal office is

**Stafford Road**

**St. Helens**

**Merseyside**

**WA10 3LZ**

company registration number 01926842

to operate an installation at

**Ravenhead Insulation Works**

**Stafford Road**

**St. Helens**

**Merseyside**

**WA10 3LZ**

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

Name	Date
Sandra Cavill	10/04/2026

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.
- 2.3.4 During a period of “abnormal operation” relating to the wet electrostatic precipitator no product shall be cured in the ovens where by-pass operation exceeds 168 hours (7 consecutive days), or whereby the cumulative duration of “abnormal operation” exceeds 480 hours (20 days) over a calendar year period.
- 2.3.5 During a period of “abnormal operation” relating to the dry electrostatic precipitator no product shall be cured in the ovens where by-pass operation exceeds 168 hours (7 consecutive days), or whereby the cumulative duration of “abnormal operation” exceeds 192 hours (8 days) over a calendar year period.
- 2.3.6 During a period of planned maintenance of wet or dry electrostatic precipitator the operator shall notify the Environment Agency in writing at least 48hrs in advance of by-pass operation, or in the case of an emergency immediately.
- 2.3.7 Waste shall only be accepted if:
- (a) it is of a type and quantity listed in schedule 2 table S2.2 and
  - (b) it conforms to the description in the documentation supplied by the producer and holder.
- 2.3.8 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
  - (b) the composition of the waste;
  - (c) the handling requirements of the waste;
  - (d) the hazardous property associated with the waste, if applicable; and
  - (e) the waste code of the waste.

- 2.3.9 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.
- 2.3.10 For the following activities referenced in Table S1.1 (AR7):
- (a) the operator must keep periods of start-up and shut down of the combustion plant as short as possible.
  - (b) there shall be no persistent emission of 'dark smoke' as defined in section 3(1) of The Clean Air Act 1993.

## **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 Where a substance is specified in schedule 3 tables S3.2 or S3.3 but no limit is set for it, the concentration of such substance in emissions to water from the relevant emission point shall be no greater than the background concentration.
- 3.1.4 Total annual emissions from the emission point(s) set out in schedule 3 tables S3.1, S3.2 and S3.3 of a substance listed in schedule 3 table S3.4 shall not exceed the relevant limit in table S3.4.
- 3.1.5 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.
- 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 & NO <sub>2</sub> expressed as NO <sub>2</sub> )	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 unless otherwise agreed in writing by the Environment Agency.

3.5.6 For activity AR7 referenced in Schedule 1 Table S1.1:

- (a) For existing MCP monitoring measurements shall be carried out before the relevant compliance date or within four months of the issue date of the permit whichever is the later.
- (b) For new MCP, the first monitoring measurements shall be carried out within four months of the issue date of the permit or of the date when the MCP is first put into operation, whichever is later.

3.5.7 Monitoring of MCP shall not take place during periods of start-up or shut down.

## 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.

4.1.3 The operator shall maintain a record of the type and quantity of fuel used and the total annual operating hours for each MCP.

## 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.
- 4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter, if during that quarter the total amount accepted exceeds 100 tonnes of non-hazardous waste or 10 tonnes of hazardous waste.
- 4.2.6 The operator shall maintain a record of the type and quantity of fuel used and the total annual operating hours for each MCP.

## 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 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.
- 4.3.8 The operator shall notify the Environment Agency, as soon as is practicable, in writing of any change of MCP at the specified location.

## 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

<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
AR1	Section 3.3 Part A(1)(a)	Manufacturing of glass wool	From receipt of raw materials to emission of exhaust gas and disposal of waste arising.
<b>Directly Associated Activity</b>			
AR2	Waste handling and storage	Handling and storage of various solid and liquid wastes from the process	
AR3	Water discharge to foul sewer	Discharges of process waste from installation	
AR4	Water discharges to controlled water	Discharges of site drainage from the installation	
AR5	Producing mineral fibre and associated products (Downstream processing).	Producing mineral fibre from the melted minerals and subsequent conversion, drying, finishing and associated abatement of releases to air and sewer.	From receipt of raw materials to emission of exhaust gas and disposal of waste arising.
AR6	Abatement plant	Emissions - control of gases from furnace, curing ovens and forming gases by Wet and Dry Electrostatic Precipitators.	
AR7	Stand-by electrical power generation from operation of a Schedule 25A Medium Combustion Plant.	1.371MWth gas oil-fired back-up generator which is an MCP.	From receipt of fuel to release of products of combustion to air. (Note 1)
AR8	Stand-by electrical power generation	0.513 MWth gas oil-fired back-up generator which is not an MCP.	From receipt of fuel to release of products of combustion to air.
Note 1:	Must not exceed 500 hours operation in a 12-month period as a rolling average over a 5-year period or operate for more than 750 hours in any single year.		

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application BQ4335IC (EPR/BQ4335IC/A001)	The response to question 2.3 given in section C2.3 of the application	11/07/2002
Response to Schedule 4 Part 1 Notice	Response to questions 1 to 4 and 7 to 9.	11/12/2002
Application for Variation FP3436SL (EPR/BQ4335IC/V002)	The response to question C2.1 given in section C2.1 of the application	19/05/2005
Application for Variation QP3530GV (EPR/BQ4335IC/V004)	Section 2a of the variation application and C2b of the further information	Received 22/08/2008 and 22/09/2008

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application for Variation EPR/BQ4335IC/V005	The response to questions C2a, C2b, C2d and C2e of the variation application and Sections 2a of the supporting document.	26/08/2009
Application for Variation EPR/BQ4335IC/V006	The response to question 3a within application form C3 and supporting information section 5 plus duly making responses 2,3, 4 and 5	Duly made 26/11/2012
Regulation 60 notice dated 19 <sup>th</sup> December 2013 and the response on 30 <sup>th</sup> May 2014	The response to the best available techniques as described in BAT conclusions under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for glass production	30/05/2014
Additional response to Regulation 60 notice	E-mail response from K West dated 9 <sup>th</sup> October 2014 containing emission monitoring reports for the Knauf, St Helens site dated February 2013, February 2014 and September 2013 and the further clarification provided on BAT conclusions 4, 9, 60, 62, and 63. E-mail from 9/1/2015 with site map	09/10/2014 and 9/1/2015
Application EPR/BQ4335IC/V009	Application Technical Report Section 1 and Appendix D of the application documents provided in response to section 3a – technical standards, Part C3 of the application form.	Duly made 08/03/2024
Response to Schedule 5 Notice dated 30/05/2024	Operating techniques described in the responses to the Notice (including accompanying information): <ul style="list-style-type: none"> <li>- Question 1 on techniques to comply with Manufacture of Glass BAT-conclusions, BAT11.</li> <li>- Question 4 on operation of new cooling units to comply with requirements in the Reference Document on the application of Best Available Techniques to Industrial Cooling Systems.</li> <li>- Question 6 on raw material deliveries.</li> <li>- Question 7 on heavy goods vehicle parking.</li> <li>- Question 8 on operation of screw conveyers to prevent dust.</li> <li>- Question 10 on management of surface water.</li> <li>- Question 11 on control of diesel/oil spillages in newly permitted areas.</li> <li>- Question 18 on containment for HD and LD dewatering screws.</li> <li>- Question 19 on control of environmental impact from full breakdown of dry electrostatic precipitator.</li> <li>- Question 20 on environmental impact from full breakdown of LD line and HD line wet electrostatic precipitator.</li> <li>- Question 22 on fire management.</li> </ul>	28/06/2024. 12/07/2024
Additional information received	Operation of medium, combustion plant as a limited operating hours plant.	25/03/2025
Additional information received	Control and automatic shutdown of forming fans from sections 1 and 2 that are directed to the two sides (fields) of the west electrostatic precipitator.	27/02/2026

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC1 (9.1)	A report shall be sent to the Agency on establishing an Environmental Management System having regard to section 2.1 of the relevant IPPC Technical Guidance. The report shall include any proposals to implement such a programme.	Complete
IC2 (9.2)	The operator shall develop and implement a noise management plan for the installation having regard to section 2.9 of the relevant IPPC Technical Guidance and the IPPC Horizontal Guidance for Noise.	Complete

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
	The noise management plan shall include biennial assessment to BS4142 of the noise from batch tanker operations and a programme to cease the hammering of batch tankers.	
IC3 (9.3)	The operator shall develop and implement an odour management plan for the installation having regard to section 2.2.6 of the relevant IPPC Technical Guidance and the IPPC Horizontal Guidance for Odour.	Complete
IC4 (9.4)	The operator shall develop a decommissioning plan for the installation having regard to section 2.11 of the relevant IPPC Technical Guidance.	Complete
IC5 (9.5)	The operator shall carryout a detailed appraisal of the availability of recycled or recovered batch raw materials including cullet, have regard to BAT. The appraisal shall consider, but not be limited to, the availability of potential sources in the current and future marketplace, the potential impact upon production, and the potential impact upon the environment.  A summary of the appraisal shall be submitted to the Agency.	Complete
IC6 (9.6)	The operator shall develop and implement a water efficiency audit for the installation having regard to section 2.4.3 of the relevant IPPC Technical Guidance.	Complete
IC7 (9.7)	The operator shall carryout a detailed appraisal of the potential to increase the use of external cullet. The appraisal shall cover both short term and long term proposals to increase the usage.  A summary of the appraisal shall be submitted to the Agency.	Complete
IC8 (9.8)	The operator shall submit a proposal, for approval by the Agency, to measure and quantify the emission rate and concentration of metals (BREF group 1 and 2) from emission point A1.  The operator shall carry out the proposal and submit the results to the Agency within six months of the Agency giving written approval of the proposal.	Complete
IC9 (9.9)	The operator shall submit proposed annual mass limits for the substances listed in table 6.1.4 for, in combination, all the release points specified in table 6.1.1.	Complete
IC10 (9.10)	The operator shall review the odour management plan implemented under condition 9.3 above for the installation, having regard to section 2.2.6 of the relevant technical guidance and the IPPC horizontal guidance for odour.  The review shall include but no limited to, changes resulting from this variation such as curing oven and cullet.	Complete
IC11 (9.11)	The operator shall review the noise management plan implemented under condition 9.2 above for the installation, having regard to section 2.9 of the relevant technical guidance and the IPPC horizontal guidance for Noise.  The noise management plan will include a day and night boundary noise survey to BS4142:1997 within 3 months of start-up.	Complete
IC12 (9.12)	The operator shall carry out a detailed appraisal of the use of a liquid pressure binder application spray in terms of VOC reduction.  A summary of the appraisal including any plans for plant-based trials shall be submitted to the Agency in writing.	Complete
IC13 (9.13)	The operator shall carry out a detailed appraisal of the use of continuous extractive monitoring on the stack A4 with reference to technical guidance note M2. A summary of the appraisal shall be submitted to the Agency in writing.	Complete
IC14 (9.14)	The operator shall submit a proposal, for approval by the Agency, to fit low flow indicators to the fiberising unit water overspray system.  The operator shall carry out the proposal and submit the results to the Agency within six months of the Agency giving written approval of the proposal.	Complete
IC15	The operator shall review the water efficiency audit implemented by condition 9.1.1and record the results of the review in writing	Complete

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
(9.15)		
IC16 (9.16)	<p>The operator shall undertake monitoring of the VOC content of the exhaust gas from the LEV system on the HD line emission point A118 upon commissioning of the system. The Operator shall submit this data, along with a review of the measured data against those results predicted from the theoretical calculations provided within the variation application dated 17 August 2009. The operator shall also provide a comparison of the actual monitoring results against the relevant benchmark limits within the Environment Agency Sector Guidance Note IPPC S3.03, Guidance for Glass Manufacturing Sector (A1 processes). In the event that the VOC emission level is greater than the maximum benchmark level, a revised H1 Assessment should be undertaken, using site specific monitoring data, and submitted to the Agency for review.</p>	Complete
IC17 (9.17)	<p>The operator shall provide an initial report for oxides of sulphur (SO<sub>x</sub>) emissions from emission point A1 following the various incremental increases of cullet level. As a minimum the operator should review:</p> <ul style="list-style-type: none"> <li>• Continuous and extractive Oxides of Sulphur monitoring data for each incremental cullet level increase actioned. The continuous monitoring shall provide data in comparison with ½ hr and daily monitoring periods</li> </ul> <p>The report shall identify any improvements together with a proposal timetable for their implementation.</p>	Complete
IC18 (9.18)	<p>The operator shall submit a report on the performance of the plant for Emission Point A1 for Oxides of Sulphur minimisation based on 12 months of operation following changes made by this variation (EPR/BQ4335IC/V006).</p> <p>The report shall detail any improvements made for optimising performance and minimising emissions of oxides of sulphur to concentrations below 150 mg/Nm<sup>3</sup>.</p> <p>As a minimum the operator should review:</p> <ul style="list-style-type: none"> <li>• Actual process performance techniques to control sulphur cullet content and optimisation of batch cullet % levels whilst complying with emission limit values.</li> <li>• Continuous and extractive Oxides of Sulphur monitoring data for each incremental cullet level increase.</li> </ul> <p>Following completion of this condition, the Emission Limit Value stated for oxides of sulphur at emission point A1 (table 6.1.3) will be reduced to 150 mg/Nm<sup>3</sup> as notified in writing with the Environment Agency.</p>	Complete
IC19	<p>The operator shall submit a report on the techniques Knauf propose to use to reduce Boron emissions from the furnace. As a minimum these should include:</p> <ul style="list-style-type: none"> <li>• Reduction of volatile components by raw material selection</li> <li>• Operation of a filter system at a suitable temperature to enhance the separation of boron compounds in the solid state</li> <li>• Use of dry or semi-dry scrubbing</li> <li>• Use of wet scrubbing</li> </ul> <p>The report shall identify any improvements required on site, together with a proposed timetable for their implementation. The report will be submitted for written approval, by the Environment Agency, before any of the proposed actions are undertaken by the Operator.</p>	Complete
IC20	<p>The operator shall provide a written report to the Environment Agency (for approval in writing) evaluating the impact of emissions during periods of abnormal operations (i.e. when either the dry Electrostatic Precipitator (ESP) plant is non-operational or when the Wet Electrostatic Precipitator (WESP) is operating at less than 70% of abatement capacity).</p> <p>Consideration should be given for the durations specified within conditions 2.3.4, 2.3.5 and 2.3.6 of this permit:</p> <ul style="list-style-type: none"> <li>• Where the impact is considered negligible to that of 'normal operations' the report should include a full justification for such conclusion.</li> </ul>	Superseded by IC28

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<ul style="list-style-type: none"> <li>Where the impact is not considered negligible to that of 'normal operations' then the operator must carry out an impact assessment (emissions to air) or <i>emissions modelling</i> to evaluate the impacts from such operations.</li> </ul> <p>Where improvements or modifications are identified, the Operator shall propose timescales for their implementation.</p> <p>The Environment Agency may vary conditions 2.3.4, 2.3.5, 2.3.6 or any other relevant conditions in response to this improvement condition.</p>	
IC21	<p>The operator shall submit a written report to the Environment Agency for technical assessment and written approval that includes:</p> <ul style="list-style-type: none"> <li>Proposals with timescales for the installation of an oil/water interceptor into the drainage route to discharge point, W1, into Ravenhead Brook.</li> </ul> <p>The operator shall implement agreed proposals in the report within the timescales approved by the Environment Agency.</p>	30/09/2026
IC22	<p>The operator shall submit a revised and updated Noise Management Plan to the Environment Agency for technical assessment and written approval.</p> <p>The revised Noise Management Plan must incorporate:</p> <ul style="list-style-type: none"> <li>noise management strategies arising from the Noise Impact Assessment submitted in determination of permit variation application, EPR/BQ4335IC/V009.</li> <li>all subsequent Noise Impact Assessments, audits and complaint investigation findings up to the date of submission of the Plan.</li> <li>Changes to site noise profile after moth-balling of the HD production line.</li> </ul> <p>The Noise Management Plan will be implemented and operated in accordance with the written agreement received from the Environment Agency.</p>	30/09/2026
IC23	<p>The operator shall submit a written report to the Environment Agency for technical assessment and written approval to validate the expected operation outlined in permit variation application, EPR/BQ4335IC/V009.</p> <p>This must include:</p> <ul style="list-style-type: none"> <li>Analytical monitoring data on the pollutant composition of discharge to sewer when such discharge occurs.</li> <li>Assessment of the impact of that discharge on receiving waters using an appropriate methodology such as the Environment Agency's H1 assessment (or equivalent).</li> <li>Proposals, with timescales, to reduce impact should the risk assessment of the new discharges to sewer indicate they have the potential to cause environmental impact.</li> </ul> <p>The operator shall implement any proposals in the report within the timescales agreed and approved by the Environment Agency.</p>	30/09/2026
IC24	<p>The operator shall submit a written report to the Environment Agency for technical assessment and written approval that details the results of a survey of the concrete in the north-west area of the expanded installation boundary which is believed to date from the former warehouse development on that land. Where appropriate the plan shall contain details for the implementation of any remedial measures, including timescales, in line with CIRIA C736 Containment systems for the prevention of pollution.</p> <p>The remedial measures shall be implemented by the operator within the timescales agreed and approved by the Environment Agency subject to such amendments or additions as notified by the Environment Agency.</p>	31/12/2026
IC25	<p>The operator shall submit a written report to the Environment Agency for written approval that outlines proposals to update the Site Condition Report (SCR) dated June 2002 (Project Ref: 73.1340.01/03) in line with <a href="#">Environmental Permitting: H5 Site condition report guidance</a>. This report shall include but not be limited to the following and include proposals to:</p>	31/12/2026

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<ul style="list-style-type: none"> <li>• Include relevant information from the 'SCR for the additional land' prepared by WSP dated June 2024 (Ref: 853177-WSP-RP-OG-0001_P03). Revision P04.</li> <li>• Include reference to the former well identified on the historical map of 1849-1909 within the existing installation and any further information on the decommissioning of this well.</li> <li>• Update of Figure 2.2 (Surface Water) in the June 2024 SCR following drainage surveys including the location of the inferred culvert reported to discharge into Sankey Brook from the onsite reservoir.</li> <li>• Prepare a stage 1 to 3 assessment for the original area of land to identify if relevant hazardous substances and any other potentially polluting substances pose a risk to soil and groundwater.</li> </ul> <p>See the <u>EC Commission Guidance concerning baseline reports (2014/C 136/03) dated 6th May 2016</u> for further information on how to prepare the stage 1 to 3 assessment.</p> <ul style="list-style-type: none"> <li>• Complete a gap analysis of any existing baseline reference data to assess if this is fit for purpose taking into account the outcomes of the Stage 1 – 3 assessments.</li> <li>• Update sections 4.0 – 7.0 in the SCR since the date of issue of permit BQ4335IC dated 11th July 2002 to include information on: <ul style="list-style-type: none"> <li>- Any changes to the permit activities</li> <li>- Measures taken to protect soil and groundwater</li> <li>- Pollution incidents that may have had an impact on soil and groundwater and details of any site investigation and remediation work completed</li> <li>- Soil and groundwater monitoring (if applicable).</li> </ul> </li> </ul> <p>Any agreed actions in the report shall be implemented by the operator from the date of approval by the Environment Agency subject to such amendments or additions as notified by the Environment Agency.</p>	
IC26	<p>The operator shall submit to the Environment Agency for approval, if applicable</p> <ul style="list-style-type: none"> <li>• Proposals to establish additional baseline reference data if any gaps are identified taking into account the outcomes of the stage 1 to 3 assessment.</li> <li>• Timescales to collect and establish any new baseline reference data.</li> </ul> <p>Any agreed proposals shall be implemented by the operator from the date of approval by the Environment Agency subject to such amendments or additions as notified by the Environment Agency.</p>	31/03/2027
IC27	<p>The operator shall submit to the Environment Agency for approval an updated consolidated Site Condition Report following completion of IC25 and IC26. This report shall include but not be limited to the following:</p> <ul style="list-style-type: none"> <li>• Inclusion of information from improvement conditions IC25 and IC26</li> <li>• A monitoring plan to comply with the requirements of permit condition 3.1.5 for periodic monitoring of relevant hazardous substances and any other potentially polluting substances if the stage 1 to 3 identifies a potential pollution risk to soil and groundwater.</li> </ul> <p>The monitoring plan shall be prepared with reference to the information in the SCR and include details of proposed monitoring locations, analytical suites and proposed frequency of monitoring.</p> <p>The monitoring plan shall include details of the information to be include within the monitoring reports produced for the site which shall include an interpretation of the results and action to be taken should any increasing trends be identified.</p>	30/06/2027
IC28	<p>The operator shall provide a written report to the Environment Agency for technical assessment and approval in writing evaluating the impact of emissions during periods of abnormal operation of the HD wet electrostatic precipitator (abnormal operation being as defined in Schedule 6 of this permit).</p> <p>This report must include the results of collection and testing of samples taken during abnormal operation.</p> <p>The report must include evaluation of the impact in the following circumstances:</p> <ul style="list-style-type: none"> <li>• If the HD wet electrostatic precipitator is in abnormal mode for 7 consecutive days.</li> </ul>	Six months after recommissioning of the HD production line.

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
	<ul style="list-style-type: none"> <li>If the HD wet electrostatic precipitator is in abnormal mode for 20 days in a calendar year.</li> </ul> <p>Where the impact is considered negligible to that of 'normal operations' the report should include a full justification for such conclusion.</p> <p>Where the impact is not considered negligible to that of 'normal operations' then the operator must carry out an impact assessment (emissions to air) or emissions modelling to evaluate the impacts from such operations.</p> <p>The report shall also include any improvements or modifications with timescales for their implementation.</p> <p>Any approved improvements or modifications shall be implemented by the operator from the date of approval by the Environment Agency subject to such amendments or additions as notified by the Environment Agency.</p> <p>The Environment Agency may vary conditions 2.3.4, 2.3.5, 2.3.6 or any other relevant conditions in response to this Improvement Condition.</p>	

## Schedule 2 – Waste types, raw materials and fuels

Raw materials and fuel description	Specification
Gas Oil or an equivalent substitute to be agreed in writing with the Environment Agency	Sulphur Content 0.1% max

Maximum quantity	None specified
<b>10</b>	<b>WASTES FROM THERMAL PROCESSES</b>
<b>10 11</b>	wastes from manufacture of glass and glass products
10 11 12	waste glass
<b>15</b>	<b>WASTE PACKAGING, ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED</b>
<b>15 01</b>	packaging (including separately collected municipal packaging waste)
15 01 07	glass packaging
<b>19</b>	<b>WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE</b>
<b>19 12</b>	Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 05	glass
<b>20</b>	<b>MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS</b>
<b>20 01</b>	separately collected fractions
20 01 02	glass

## 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)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 in site plan in Schedule 7]	61m stack inner - furnace	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	300 mg/m <sup>3</sup>	Daily Average	Continuous	Principles of EN 14181 (Note d)
			450 mg/m <sup>3</sup>	Half Hour maximum (Note a) (Note e)		
		Particulate matter	10 mg/m <sup>3</sup>	Daily Average	Continuous	Principles of EN 14181 (Note d)
			15 mg/m <sup>3</sup>	Half Hour maximum (Note a)		
		Sulphur Dioxide	150 mg/m <sup>3</sup>	Daily Average (Note c) (Note e)	Continuous	Principles of EN 14181 (Note d)
		Gaseous Fluorides as HF	5 mg/m <sup>3</sup>	Half Yearly (Note b)	Periodic	BS EN 15713
		Carbon Monoxide	100 mg/m <sup>3</sup>	Half Yearly (Note b)		NDIR analyser with reference to BS EN 15058
		Gaseous Chlorine as HCl	10 mg/m <sup>3</sup>	Half Yearly (Note b)		BS EN1911
		As, Co, Ni, Cd, Se, Cr (VI) and their compounds (total)	1 mg/m <sup>3</sup>	Yearly (Note b)		BS EN 14385 and MID
As, Co, Ni, Cd, Se, Cr (VI), Sb, Pb, Cr(III), Cu, Mn, V, Sn and their compounds (total)	2 mg/m <sup>3</sup>	Yearly (Note b)	BS EN 14385 and MID			
A2 [Point A2 in site plan in schedule 7]	75m stack – HD forming, curing and cooling	Particulate matter	30 mg/m <sup>3</sup>			BS EN 13284-1
		Phenol	5 mg/m <sup>3</sup>			BS EN 13649
		Formaldehyde	5 mg/m <sup>3</sup>			US EPA Method 316

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		Ammonia	50 mg/m <sup>3</sup>	Half Yearly (Note b)	Periodic	BS EN 14791
		Volatile Organic Compounds (as Carbon)	25 mg/m <sup>3</sup>			BS EN 12619
A3 [Point A3 in site plan in schedule 7]	61m stack outer – Blowing wool line	Particulate matter	30 mg/m <sup>3</sup>	Half Yearly (Note b)	Periodic	BS EN 13284-1
		Phenol	5 mg/m <sup>3</sup>			BS EN 13649
		Formaldehyde	5 mg/m <sup>3</sup>			US EPA Method 316
		Ammonia	60 mg/m <sup>3</sup>			BS EN 14791
		Volatile Organic Compounds (as Carbon)	30 mg/m <sup>3</sup>			BS EN 12619
A4 [Point A4 on site plan in schedule 7]	65m stack – LD line forming, curing & cooling	Particulate matter	30 mg/m <sup>3</sup>	Half Yearly (Note b)	Periodic	BS EN 13284-1
		Phenol	5 mg/m <sup>3</sup>			BS EN 13649
		Formaldehyde	5 mg/m <sup>3</sup>			US EPA Method 316
		Ammonia	50 mg/m <sup>3</sup>			BS EN 14791
		Volatile Organic Compounds (as Carbon)	25 mg/m <sup>3</sup>			BS EN 12619
A5	Batch silo vent (filter C)		No limit			
A11	Walki extraction		No limit			
A32	Furnace Emergency stack		No limit			
A36	Binder Plant LEV		No limit			
A38 and A39	Batch Silo vents (filter A & B)		No Limit			
A40-A97	Roof vents – downstream processes		No Limit			

<b>Table S3.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A98 – A100	Roof vents – furnace building		No limit			
A101 – A109	Roof vents – wash water		No limit			
A117	Cavity wall line dust extraction		No limit			
A118	LEV system on HD line		No limit			
A119 (SJ 50216 94399)	Back-up generator 1 (1.371MWth) operated on gas oil	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	No limit	Periodic	After 1500 operating hours have elapsed and no less frequent than every 5 years from date of acceptance of first monitoring measurements under condition 3.5.6.	MCERTS BS EN 14792
A120 (SJ 50161 94436)	Back-up generator 2 (0.513MWth) operated on gas oil	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	No limit	No reference period	No monitoring	No monitoring standard or method.

**Notes:**

- Note a** Not more than one half hour period during any rolling 24-hour period shall exceed the half hour maximum emission limit.
- Note b** Minimum interval between monitoring shall be 4 months
- Note c** Following conclusion of improvement condition 18 (9.18) the daily average emission limit value for SO<sub>x</sub> will be set at 150mg/m<sup>3</sup>.
- Note d** 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 e** The requirement to undertake both periodic monitoring and continuous monitoring for the same parameters (as check monitoring) will be replaced with continuous monitoring requirements alone. This is possible because modern certification standards for CEMs include measurement calibration and thus do not need to repeat periodic measurements for calibration.

<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (incl. unit)</b>	<b>Reference Period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
W1 (Ravenhead Dam)	Surface water from final product storage and cullet storage area north of site	Oil	5mg/l	Periodic	Monthly	Alcontrol method TM172
W2 (Ravenhead Dam)	Surface water from drain parallel to oxygen plant	Oil	5 mg/l	Periodic	Monthly	Alcontrol method TM172
W3 (Ravenhead Dam)	Cullet quench water return drain	Oil	5 mg/l	Periodic	Monthly	Alcontrol method TM172
W4 (Ravenhead Dam)	Surface water from main roadway between F15 & binder plant	Oil	5 mg/l	Periodic	Monthly	Alcontrol method TM172
W5 (Ravenhead Dam)	Surface water from drain passing washway plant	Oil	5 mg/l	Periodic	Monthly	Alcontrol method TM172

<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (incl. Unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
S1 Ravenhead Road Sewer (United Utilities)	Process Water System	No Parameters set	No limit set	--	--	--

<b>Substance</b>	<b>Medium</b>	<b>Limit (including unit)</b>
Particulate	Air from emission points A11, A36, A38, A39, A117, A118	1500 Kg in a year
Phenol		110 kg in a year
Formaldehyde		160 kg in a year
Ammonia		3000 kg in a year

<b>Table S3.4 Annual limits</b>		
<b>Substance</b>	<b>Medium</b>	<b>Limit (including unit)</b>
Volatile Organic Compounds (as Carbon)		4500 Kg in a year

## Schedule 4 – Reporting

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

<b>Table S4.1 Reporting of monitoring data</b>			
<b>Parameter (as required by condition 3.5.1.)</b>	<b>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Particulates mg Nm <sup>-3</sup>	A2, A3, A4	Every 6 months for extractive sampling	1 January, 1 July
Particulates mg Nm <sup>-3</sup>	A1	Every 3 months for continuous monitoring data against limits in Table S3.2	1 January, 1 April, 1 July, 1 October
Oxides of Nitrogen (as NO <sub>2</sub> ) mg Nm <sup>-3</sup>	A1		
Carbon Monoxide mg Nm <sup>-3</sup>	A1	Every 6 months	1 January, 1 July
Oxides of Sulphur (as SO <sub>2</sub> ) mg Nm <sup>-3</sup>	A1	Every 3 months for continuous monitoring data against limits in Table S3.2	1 January, 1 April, 1 July, 1 October
Gaseous Fluorides (as HF) mg Nm <sup>-3</sup>	A1	Every 6 months	1 January, 1 July
Gaseous Chlorides (as HCl) mg Nm <sup>-3</sup>	A1		
Phenol mg Nm <sup>-3</sup>	A2, A3, A4		
Formaldehyde mg Nm <sup>-3</sup>	A2, A3, A4		
Ammonia mg Nm <sup>-3</sup>	A2, A3, A4		
Volatile Organic Compounds (as Carbon) mg Nm <sup>-3</sup>	A2, A3, A4		
Oil mg/l	W1, W2, W3, W4 and W5	Every 3 months	1 January, 1 April, 1 July, 1 October
Emissions to air (MCP)	A119 (Limited hours MCP)	After 1500 operating hours have elapsed And no less frequent than every 5 years from date of acceptance of first monitoring measurements under condition 3.5.6.	1 January

<b>Table S4.2 Performance parameters</b>		
<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Water usage	Annually	m <sup>3</sup>
Energy usage	Annually	MWh

<b>Table S4.3 Reporting forms</b>		
<b>Media/parameter</b>	<b>Reporting format</b>	<b>Date of form</b>
Air	Form air 1 or other form as agreed in writing by the Environment Agency	DD/MM/YY
Water usage	Form water usage 1 or other form as agreed in writing by the Environment Agency	DD/MM/YY
Sewer	Form sewer 1 or other form as agreed in writing by the Environment Agency	DD/MM/YY
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	DD/MM/YY
Performance 1	Form performance 1 or other form as agreed in writing by the Environment Agency	DD/MM/YY
Particles 1	Form particles 1 or other form as agreed in writing by the Environment Agency	DD/MM/YY

## 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	<b>BQ4335IC</b>
Name of operator	<b>Knauf Insulation Ltd.</b>
Location of Facility	<b>Ravenhead Insulation Works</b>
Time and date of the detection	

<b>(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</b>	
<b>To be notified within 24 hours of detection</b>	
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>(b) Notification requirements for the breach of a limit</b>	
<b>To be notified within 24 hours of detection unless otherwise specified below</b>	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

<b>(b) Notification requirements for the breach of a limit</b>	
<b>To be notified within 24 hours of detection unless otherwise specified below</b>	
Measures taken, or intended to be taken, to stop the emission	

<b>Time periods for notification following detection of a breach of a limit</b>	
<b>Parameter</b>	<b>Notification period</b>

<b>(c) Notification requirements for the breach of permit conditions not related to limits</b>	
<b>To be notified within 24 hours of detection</b>	
Condition breached	
Date, time and duration of breach	
Details of the permit breach i.e. what happened including impacts observed.	
Measures taken, or intended to be taken, to restore permit compliance.	

<b>(d) Notification requirements for the detection of any significant adverse environmental effect</b>	
<b>To be notified within 24 hours of detection</b>	
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	

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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

“abnormal operation” is defined as:

- on the HD production line means a greater than 30% reduction in the abatement capacity of the wet Electrostatic Precipitator
- on a dry Electrostatic Precipitator means non-operation of the Electrostatic Precipitator (either planned or unplanned)

“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.

“background concentration” means such concentration of that substance as is present in:

- for emissions to surface water, the surface water quality up-gradient of the site; or
- for emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge.

“compliance date” means 01/01/2025 for existing MCPs with net rated thermal input of greater than 5MWth or 01/01/2030 for existing MCPs with a net rated thermal input of less than or equal to 5MWth.

“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 2016 No.1154 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.

“existing medium combustion plant” means an MCP in operation before 20 December 2018.

“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 as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

“limited operating hours MCP” means an MCP that meets the requirements of paragraph 8 of Part 2 of Schedule 25A of the Environmental Permitting Regulations.

“List of Wastes” means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on

waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste.

“medium combustion plant” or “MCP” means a combustion plant with a net rated thermal input equal to or greater than 1 MW but less than 50 MW.

“Medium Combustion Plant Directive” or “MCPD” means Directive 2015/2193/EU of the European Parliament and of the Council on the limitation of emissions of certain pollutants into the air from medium combustion plants, into the air from medium combustion plants, as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

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

“operating hours” means the time, expressed in hours, during which a combustion plant is operating and discharging emissions into the air, excluding start-up and shut-down periods.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes and in relation to hazardous waste, includes the asterisk.

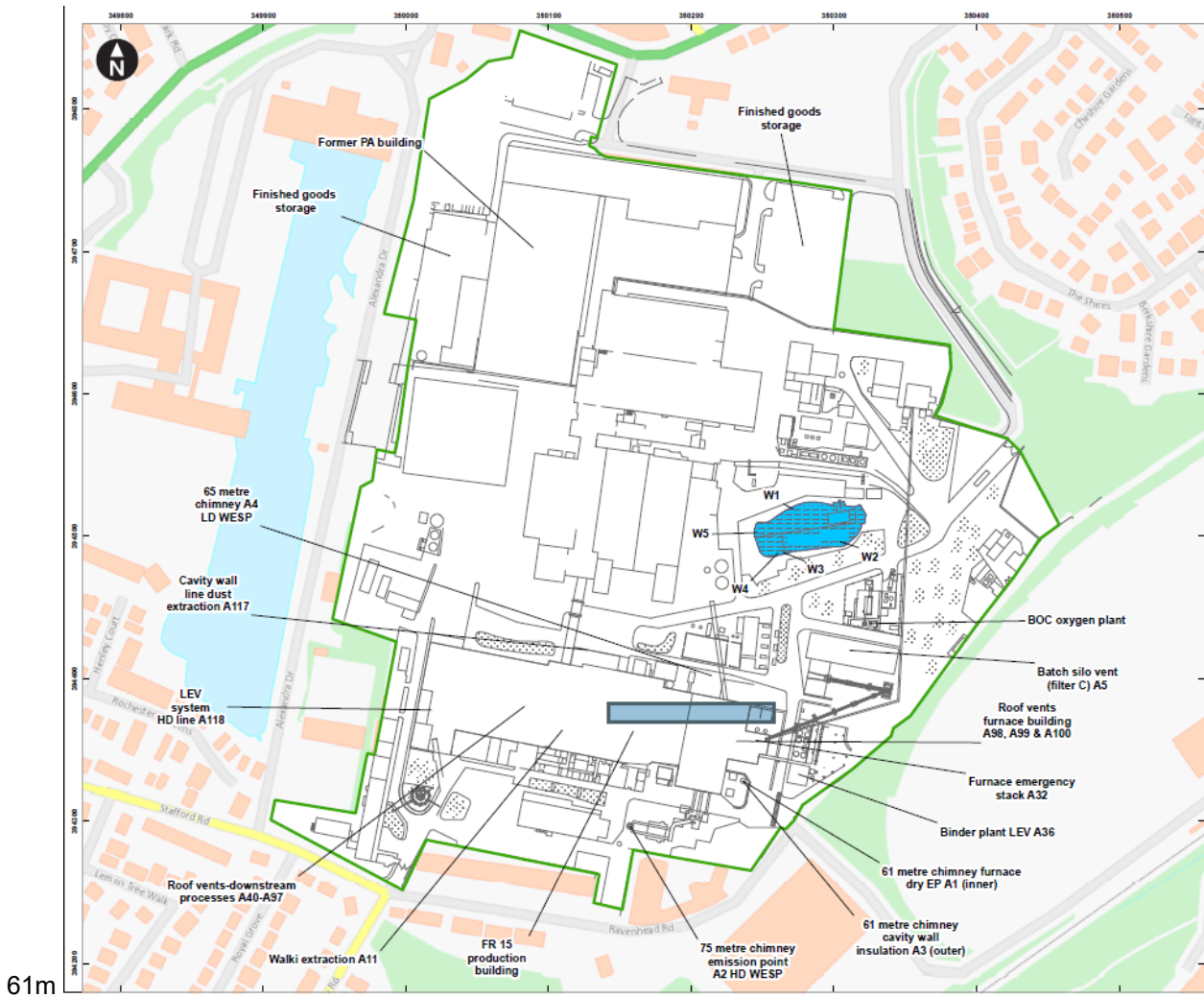
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels other than gas engines or gas turbines, 6% dry for solid fuels; and/or
- in relation to emissions from gas engines or gas turbines, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 15% dry for liquid and gaseous fuels; 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



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