

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Hydro Aluminium Deeside Limited

**Wrexham Aluminium Works
Bridge Road
Wrexham Industrial Estate
Wrexham
LL13 9PS**

Permit number

EPR/BK3638IF

Wrexham Aluminium Works

Permit number EPR/BK3638IF

Introductory note

This introductory note does not form a part of the permit

The main purpose of activities at the installation is production of aluminium extrusion ingot, by taking in primary and scrap aluminium in various forms, melting it and adding alloying elements to provide product for resale. Typically up to 25% of the feed is primary aluminium ingot or sow. Installed production capacity is more than 60,000 tonnes per year. The Casthouse comprises a 35 tonne capacity, gas-fired reverberatory melting furnace, and a 32 tonne capacity, gas-fired reverberatory holding/casting furnace.

Aluminium is delivered to site by road, and is inspected and/or sorted to remove off-spec or other undesirable materials before being fed to the furnace. After melting is complete, dross is removed from the surface of the molten metal by skimming into bins. The dross is pressed in a dross press to recover some of the aluminium metal and produce a residual dross suitable for sending to an aluminium reprocessing company. The molten metal is emptied by tilting the furnace so that the aluminium flows along launders. It then enters the holding furnace, where sampling and alloying additions may be carried out.

From the holding furnace, aluminium passes through a filtration/degassing unit which uses Argon to degas and clean the metal. It is then cast into cylindrical billets 7 metres long and up to 228mm diameter. The billets are water-cooled during casting, with most water recycled through a closed-loop system incorporating a water-cooled heat exchanger. Cast billet is put into an automated continuous homogeniser and cooler to improve its metallurgical structure. This involves heating up to and holding at high temperature, then automated transfer of homogenised billets to an open air-cooling station where the billets are rapidly cooled with forced air. The billets are then sawn to length. The finished product is stored outside ready for despatch to the customer.

The furnaces burn natural gas, so most of the site's releases to air can be described as combustion products. They include oxides of nitrogen and other substances released when aluminium scrap is melted. Off-gases from the main melter, together with air drawn from a hood over the furnace door, are ducted to the three lime-injected bag filter plants outside the factory. Combustion products from the holding and homogenising furnaces generally pass to atmosphere unabated, but the holding furnace emissions are diverted automatically to the bag plants if an installed continuous monitor detects particulate matter. Emissions to air from dross pressing operations are ducted to the bag filter plants. The furnaces are designed to capture any fumes escaping through the furnace doors by means of extracted hoods.

There is also a twin-chamber pre-heating furnace for aluminium ingot. This equipment will utilise waste heat in furnace off-gases, ensuring safe charging of dry material and reducing energy use in the melting and holding furnaces. Moisture trapped inside cracks and cavities in ingots of aluminium can cause a powerful explosion when charged into molten metal. The ingot preheater will use waste heat from the melting and holding furnace off-gases to heat ingots to a temperature of >150°C over a four-hour cycle. Pre-heated ingots would then be charged to the melting or holding furnace as dry material and would enable reduced heat input from the furnace burners, in turn saving energy and direct CO₂ emissions from gas consumption. The preheater is of a twin chamber design to enable continuous treatment of prime ingot. The design incorporates separate auxiliary burners serving each chamber. These are natural gas-fired and rated at 800kW thermal input each. The burners can be used to raise temperatures during start-up and will enable effective temperature regulation during the pre-heat cycle. The burners are not used simultaneously. Combustion gases from burner operations will exhaust to atmosphere via the existing filtration plant and associated flues (release points A1 and A12). If the preheater is operated solely with a gas burner, the inlet of furnace gases and outlet to the abatement plant would be automatically sealed-off in order to maintain steady operation and avoid the risk of the existing fume abatement plant shutting down due to the temperature being exceeded.

The main sources of releases to water are bleed-off from the water cooling towers and water used in the casting pit and, occasionally, complete discharge of this water. The discharge route is via an interceptor to a surge basin, which overflows to an underground pit. An orifice plate restricts the flow rate of effluent from the pit to the local stream at release point W1. Surface drainage from the North East side of the factory also discharges into the stream at W1, via an oil/water interceptor into which any rainwater collected by the main oil and fuel storage tank bund is also pumped. The stream discharges into the Redwither Brook. Effluent contains biocide and also some contamination from the mould release agent used on the casting machines.

The local stream is also supplied by a separate land drain which existed before the Operator's factory was built. It runs under land on which the factory was built and is designated release point W2.

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

Status log of the permit		
Description	Date	Comments
Application BK3638 received	07/09/2001	
Response to Schedule 4 Notice 11/12/01 provided	14/01/2002	
Supplementary information provided	30/01/2002	Map and slight amendment to waste storage information
Supplementary information provided	25/02/2002	Further slight amendment to waste storage
Supplementary information provided	08/03/2002	Clarification regarding monitoring details

Status log of the permit

Description	Date	Comments
Agency-initiated variation EPR/BK3638IF/V002 determined - variation notice issued	14/07/2009	Agency-initiated permit review
Variation application EPR/BK3638IF/V003 received	19/03/2014	
Variation application EPR/BK3638IF/V003 determined - variation notice issued	20/06/2014	
NRW-initiated variation EPR/BK3638IF/V004 determined - variation notice issued	29/04/2015	NRW-initiated variation to correct table S4.1
NRW-initiated variation EPR/BK3638IF/V005 determined - variation notice and consolidated permit issued	20/07/2017	Varied and consolidated permit issued in modern IED condition format
Variation application EPR/BK3638IF/V006 received	Duly made 19/08/2020	Variation to install a twin-chamber pre-heating furnace with auxiliary burner (800kwth each).
Variation application EPR/BK3638IF/V006 determined - variation notice and consolidated permit issued	21/10/2020	Varied permit issued.

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number
EPR/BK3638IF

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BK3638IF/V006 authorising,

Hydro Aluminium Deeside Limited (“the operator”),
whose registered office is

**Bridge Road
Wrexham Industrial Estate
Wrexham
LL13 9PS**

company registration number **01786117**
to operate a regulated facility at

**Bridge Road
Wrexham Industrial Estate
Wrexham
LL13 9PS**

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

Signed

Date

Holly Noble	21/10/2020
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Authorised on behalf of Natural Resources Wales

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 (a) 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 Natural Resources Wales.
- (b) If notified by Natural Resources Wales that the activities are giving rise to pollution, the operator shall submit to Natural Resources Wales 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 Natural Resources Wales.
- 2.3.2 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.3 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.
- 2.3.4 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.

- 2.3.5 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.

2.4 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 Natural Resources Wales.
- 2.4.2 Except in the case of an improvement which consists only of a submission to Natural Resources Wales, the operator shall notify Natural Resources Wales 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 and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.

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 Natural Resources Wales that the activities are giving rise to pollution, submit to Natural Resources Wales 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 Natural Resources Wales.
- 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 Natural Resources Wales, 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 Natural Resources Wales that the activities are giving rise to pollution outside the site due to odour, submit to Natural Resources Wales 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 Natural Resources Wales.

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 Natural Resources Wales, 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 Natural Resources Wales that the activities are giving rise to pollution outside the site due to noise and vibration, submit to Natural Resources Wales 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 Natural Resources Wales.

3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by Natural Resources Wales, undertake the monitoring specified in the following tables in schedule 3 to this permit:
 - (a) point source emissions specified in tables S3.1 and S3.2
- 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 3.3.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by Natural Resources Wales.
- 3.5.4 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 and S3.2 unless otherwise agreed in writing by Natural Resources Wales.

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 Natural Resources Wales, 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 Natural Resources Wales.

4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by the permit to Natural Resources Wales using the contact details supplied in writing by Natural Resources Wales.
- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31 January (or other date agreed in writing by Natural Resources Wales) 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 annual production /treatment data set out in schedule 4 table S4.2; and
 - (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 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 Natural Resources Wales, 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 S4.4 ; 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 Natural Resources Wales, 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 Natural Resources Wales 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.

4.3 Notifications

- 4.3.1 (a) In the event 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 Natural Resources Wales,
 - (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) in the event of a breach of any permit condition the operator must immediately—
- (i) inform Natural Resources Wales, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) in the event 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 Natural Resources Wales has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform Natural Resources Wales when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to Natural Resources Wales at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 Natural Resources Wales 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.
- In any other case:
- (a) the death of any of the named operators (where the operator consists of more than one named individual);
 - (b) any change in the operator's name(s) or address(es); and
 - (c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

- 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) Natural Resources Wales 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 Natural Resources Wales 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, Natural Resources Wales shall be notified within one month of:
- (a) a decision by the Secretary of State not to re-certify the agreement;
 - (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
 - (c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.4 Interpretation

- 4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.
- 4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 - Operations

Table S1.1 activities

Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
A1	2.2 A(1) (b)	Melting, including making alloys of, non-ferrous metals, including recovered products and the operation of non-ferrous metal foundries where - (i) the plant has a melting capacity of more than 4 tonnes per day for lead or cadmium or 20 tonnes per day for all other metals, and (ii) any furnace (other than a vacuum furnace), bath or other holding vessel used in the plant for the melting has a design holding capacity of 5 or more tonnes.	Receipt of raw materials through to product export

Directly Associated Activity

A2	Off-gas collection, abatement and discharge systems (including fugitives)	Ducting, stacks and filtration equipment, including three lime-injected bag filter plants	From furnaces and dross press through to release points
A3	Water discharges to controlled waters	Discharge of trade effluent and site drainage from the installation	From use of water in process to point of entry to controlled waters, including interceptors
A4	All handling of skimmings, dross and waste materials	Skimming activities, dross handling, pressing and storage, lime wastes, other wastes	From point of arising through to export
A5	Pre-heating of furnace input materials using waste heat and auxiliary natural gas fired burners (800kw thermal input).	Heating of aluminium ingot or T-bar using waste heat from melting & casting furnaces, prior to being charged to the melting furnace of the listed Schedule 1 activity. The burners can be used to raise temperatures during start-up and will enable effective temperature regulation during the pre-heat cycle.	The ingot preheater will use waste heat from the melting and holding furnace off-gases to heat ingots to a temperature of >150°C over a four hour cycle. The preheater is of a twin chamber design to enable continuous treatment of prime ingot. The design incorporates a separate auxiliary burner (2 burners) serving each chamber. Only one burner shall operate at a time (i.e. duty and stand-by). Burners shall not operate simultaneously.

Table S1.2 Operating techniques

Description	Parts	Date Received
Application	The response to question 2.3 given in section B2.3 of the application	07/09/2001
Response to Schedule 4 Part 1 Notice	Response to questions 29-47	14/01/2002
Further information attached to telefax message	Answer to question about continuous dust monitor in the new holder discharge stack	30/01/2002
Proposed external scrap feedstock storage area 20102/2007 and 04/06/2007		Agreed 05/06/2007
Noise BAT review	Section titled "Actions to be taken by Hydro Aluminium Deeside"	18/07/2008
Improvement Programme Requirement 9.9	All	02/02/2004
Report on potential environmental improvements to a permitted installation (4.1.3 review)	All	16/03/2005
Variation application EPR/BK3638IF/V003	Application part C3 - answer to question 3	19/03/2014
Variation application EPR/BK3638IF/V003	Supporting document entitled "Information to support an application to vary a bespoke environmental permit"	19/03/2014
NRW-initiated variation EPR/BK3638IF/V005	Regulation 60 Notice response	27/10/2016
Variation application EPR/BK3638IF/V006	Application part C2 and C3 – all parts	23/04/2020
Variation application EPR/BK3638IF/V006	Supporting document entitled "Information to support an application to vary a bespoke Environmental Permit" March 2020.	23/04/2020

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
1	The Operator shall carry out a feasibility study into improving effluent monitoring and disposal facilities, including low measurement and representative sampling and shall submit a report of the study to the Agency. Following this study, and no later than 1 October 2002, the Operator shall submit proposals to the Agency for achieving substantial improvements in methods for determination of discharges to controlled water.	Complete
2	The Operator shall (a) install a telephone facility to receive complaint reports from the Agency or the general public during operational hours outside the hours of 9am to 5pm; and (b) instigate a procedure whereby, on receipt of a complaint report, there is no undue delay in undertaking an investigation and feeding the subsequent conclusions back to the Agency in writing.	Complete

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
3	The Operator shall carry out sufficient emission monitoring as part of Centre 2 commissioning to enable comprehensive and representative plant performance data to be collected on oxides of nitrogen ("NOx"). From the data, the Operator shall prepare a report showing representative NOx concentrations and mass flow rates, both peak and averaged over relevant periods such as furnace cycle times, for the Centre 2 furnaces. Concentrations and mass flow rates which cannot be measured shall be calculated or estimated, including (for example) in the furnace extract duct before dilution by hood extract air. The report shall also include estimates of maximum annual mass emissions from each release point on the site, and a copy shall be sent to the Agency.	Complete
4	The Operator shall submit a report to the Agency on the commissioning of the main plant and equipment used in Centre 2. The report shall contain full details of the plant configurations and activities tested and of the operating procedures and equipment settings necessary to comply with the conditions of this permit.	Complete
5	The Operator shall submit a report to the Agency, describing how noise readings on the site's continuous monitor are used to indicate (i) likely compliance or otherwise with Conditions 6.6.1 and 6.6.2, and (ii) whether noise levels at noise sensitive premises are likely to conform to Noise Rating Curves 40 (between 21:00 and 07:00 hours) and 50 (between 07:00 and 21:00 hours).	Complete
6	The Operator shall carry out an assessment of whether Centre 2 represents BAT regarding noise emissions and shall report the findings to the Agency.	Complete
7	The Operator shall carry out a review of the site's noise control policy and shall submit a review of the findings to the Agency.	Complete
8	Following the study required under Reference 9.1 above, the Operator shall submit proposals to the Agency for achieving substantial improvements in methods for determination of discharges to controlled water.	Complete
9	The Operator shall investigate means of improving energy efficiency of the site's homogenising furnaces and reducing their NOx emissions, and shall submit a report of findings to the Agency.	Complete
10	The Operator shall submit a report which reviews the potential impact of the site's total releases of oxides of nitrogen on sensitive habitats and their maximum contribution towards environmental NOx concentrations close to the installation.	Complete
11	The Operator shall carry out a review of the suitability of the noise monitor location and setting of monitoring periods during the night. A report of the review shall be sent to the Agency. If monitoring periods any greater than 5 minutes are proposed between the hours of 21:00 and 07:00, the report must include a justification for this proposal.	Complete
12	A report shall be sent to the Agency on establishing an Environmental Management System having regard to section 2.1 of the relevant IPPC Sectoral or other Technical Guidance. The report shall include any proposals to implement such a programme.	Complete
13	The Operator shall submit a report of feasibility study into the elimination of all releases to air and water that could result from ingress of water into the dross storage area.	Complete
14	The Operator shall carry out a comprehensive audit of the efficiency of water use.	Complete

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
15	The Operator shall carry out an assessment of the quality of the Redwither Brook, in collaboration with the Agency. The Operator shall then assess the potential impact of emissions from the site on the Redwither Brook and submit a report to the Agency.	Complete
16	The Operator shall submit a report reviewing the effectiveness of bag filtration plant performance monitoring. If the report identifies improvements that represent BAT, the report shall contain a timetable for implementing by 1 April 2004 the improvements to bag plant performance monitoring.	Complete
17	The Operator shall submit a report on the potential concentration and mass release of dioxins and furans into air and land from the installation. The report shall include all relevant available emission data (for A1, A12 and waste lime) and shall identify which steps are necessary to keep releases to air below 0.1ng/m ³ . The report shall also contain a timetable for reducing, by 1 April 2004, emissions of dioxins and furans if the techniques for reduction represent BAT.	Complete
18	The Operator shall submit a report which: (i) identifies sources of ammoniacal nitrogen and BOD in discharges to water; (ii) reviews options for reducing these emissions through minimisation at source or treatment, to below 2.5mgA for BOD and 1/5mg/l for ammoniacal nitrogen; and (iii) assesses options for reducing emissions of metals, suspended solids and COD. If one of the options represents BAT the report shall contain a timetable for implementing by 1 st June 2005 that option.	Complete
19	The Operator shall submit a report reviewing the options for reducing the emissions of the pollutants listed below to below the concentrations indicated: - Oxides of nitrogen (as NO ₂) 100mg/m ³ at standard conditions for releases from the melting furnaces prior to dilution with hood air. - Particulate matter 5mg/mJ as monthly average of continuous monitor readings, from A1, A12 and A13. If one of the options represents BAT the report shall contain a timetable for implementing that option by 1 June 2005.	Complete
20	The Operator shall review the costs and benefits on installing continuous emission monitors on release point A1 and A12, for measuring NO _x , SO ₂ , HCl, HF and VOCs. A report of the review shall be sent to the Agency.	Complete
21	The Operator shall submit a report detailing investigations into the feasibility of treating and re-using casting cooling water and site surface water.	Complete
22	The Operator shall submit a report reviewing the effectiveness of dross handling, the extraction from storage areas and the containment standard required for export to dross processors. If the identified improvements represent BAT, the report shall contain a timetable for implementing the improvements by 1 June 2005.	Complete
23	The Operator shall produce and implement a noise management plan in line with Agency 30 th November Guidance (Horizontal Guidance Note IPPC H3). Confirmation shall be sent in writing to the Agency that a plan has been formulated and implemented.	Complete
24	The Operator shall carry out a review of the surface water drains on site and ensure that only clean and uncontaminated rain water is entering them. A summary report including any improvements highlighted shall be submitted to the Environment Agency.	Complete

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
25	The Operator shall provide the Environment Agency with a timetable for producing and implementing robust and clear procedures and work instructions to ensure that activities are carried out by all relevant staff in a manner that will secure compliance with the conditions of this permit.	Complete
26	The Operator shall analyse the casting pit water prior to the next four releases. The determinands to be analysed for are BOD, COD, chloride, ammoniacal nitrogen, suspended solids, total petroleum hydrocarbons, aluminium, pH, temperature and discharge volume. A report summarising the results of the monitoring shall be submitted to the Agency.	Complete
27	The Operator shall submit a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution. This review shall be carried out based on the relevant BREF note.	Not required
28	The Operator shall investigate the feasibility of upgrading all continuous and extractive monitoring to air and water to ensure it is MCERTS compliant. A report summarising the findings, including a timescale for carrying out any improvements highlighted shall be provided to the Environment Agency.	Complete
29	The Operator shall, following commission of the continuous homogeniser, submit to Natural Resources Wales a stack emissions monitoring report for the continuous homogeniser as described in section 4.2 of the document entitled "Information to support an application to vary a bespoke environmental permit".	Complete
30	The operator shall submit an updated Environmental Management System to reflect the new equipment being installed as part of variation V006 – installation of pre-heat furnace including auxiliary natural gas fired burners as described in section 2 of the document entitled "Information to support an application to vary a bespoke environmental permit, March 2020".	21/01/2021
31	The operator shall, following commission of the pre-heat furnace with auxiliary natural gas fired burners, submit to Natural Resources Wales a stack emissions monitoring report for the combined emissions from the furnaces and preheat chamber as releases to air from stacks A1 and A12 to ensure combined emission releases will remain below current emission limit values (ELV's) as described in section 4 of the document entitled "Information to support an application to vary a bespoke environmental permit, March 2020".	21/01/2021

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
32	<p>The operator shall, following commissioning of the pre-heat furnace with auxiliary natural gas fired burners, submit to Natural Resources Wales a noise monitoring assessment at the nearest receptor. This shall include:</p> <ul style="list-style-type: none">• A full noise monitoring survey and assessment meeting the BS4142:2014 standard including details of local conditions e.g. meteorological conditions (wind direction)• 1/3rd octave and narrow band (FFT) measurements to identify any tonal elements or low frequency noise• Reference to the World Health Organisation guidelines for community noise• Reference to the Noise Action Plan for Wales 2018-2023 Upon completion of the work, a written report shall be submitted to Natural Resources Wales. <p>The report shall refer to the expected noise levels in the document produced as part of the application entitled "Information to support an application to vary a bespoke environmental permit, March 2020". If rating levels are likely to cause adverse impact at sensitive receptors, the report shall include an assessment of the most suitable abatement techniques, an estimate of the cost and a proposed timetable for their installation.</p>	21/01/2021

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels

Raw materials and fuel description	Specification
-	-

Table S2.2 Permitted waste types and quantities for the use of third party scrap

Waste code	Description
12 01 03	Waste from shaping/physical treatment of metals/plastic: non-ferrous metal filings and turnings, e.g. swarf, turnings, punchings
15 01 04	Waste from packaging, absorbents, wiping cloths and filters: metallic packaging, e.g. beer barrels, gas cylinders
16 01 18	Other wastes from industrial processes: non-ferrous metals from end of life vehicles, e.g. wheels
17 04 02	Construction and demolition waste: aluminium, e.g. wire, aluminium from demolition sites
19 10 02	Materials from waste and water treatment: non-ferrous waste from shredding of metal-containing waste, e.g. shredded metal
19 12 03	Materials from waste and water treatment: non-ferrous metal from mechanical treatment, e.g. loose, un-shredded metal from a scrap merchant
20 01 40	Municipal waste and similar materials from commerce and industry: metals, e.g. clean production scrap

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 (as shown on drawing number CL(50)01/B Ref 5)	Vent from bag filter plants 1 and 2	Sulphur Dioxide	25 mg/m ³	2 hour average	Six monthly	BS EN 14791
	Vent from bag filter plants 1 and 2	Volatile Organic Carbons (as Carbon)	20 mg/m ³	4 hour	Six monthly	BS EN 12619: 2013
	Vent from bag filter plants 1 and 2	Gaseous Fluorides (as HF)	1 mg/m ³	-	Six monthly	BS ISO 15713
	Vent from bag filter plants 1 and 2	Hydrogen Chloride	10 mg/m ³	-	Six monthly	BS EN 1911
	Vent from bag filter plants 1 and 2	Dioxins	0.1 ng/m ³	Minimum 4 hour	Six monthly	BS EN 1948
	Vent from bag filter plants 1 and 2 combined with Combustion gases from pre-heater furnace including auxillary gas-fired burner (800kw thermal input)	Carbon Monoxide	100 mg/m ³	-	Six monthly	BS EN 15058
	Vent from bag filter plants 1 and 2 combined with Combustion gases from pre-heater furnace including auxillary gas-fired burner (800kw thermal input)	Oxides of Nitrogen (as NO ₂)	60 mg/m ³	4 hour	Six monthly	BS EN 14792
	Vent from bag filter plants 1 and 2	Particulate	For calibration purposes - no limit	4 hour	Annual	BS EN 13284-1

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
	Vent from bag filter plants 1 and 2	Particulate	5 mg/m ³	Daily average	Continuous	BS EN 15267-3 ⁽¹⁾
A12 (as shown on drawing number CL(50)01/B Ref 6)	Vent from bag filter plant 3	Sulphur Dioxide	25 mg/m ³	2 hour average	Six monthly	BS EN 14791
	Vent from bag filter plant 3	Volatile Organic Carbons (as Carbon)	20 mg/m ³	4 hour average	Six monthly	BS EN 12619:1999
	Vent from bag filter plant 3	Gaseous Fluorides (as HF)	1 mg/m ³	-	Six monthly	BS ISO 15713
	Vent from bag filter plant 3	Hydrogen Chloride	10 mg/m ³	-	Six monthly	BS EN 1911
	Vent from bag filter plant 3	Dioxins	0.1 ng/m ³	Minimum 4 hour	Six monthly	BS EN 1948
	Vent from bag filter plant 3 combined with Combustion gases from pre-heater furnace including auxillary gas-fired burner (800kw thermal input)	Carbon Monoxide	100 mg/m ³	-	Six monthly	BS EN 15058
	Vent from bag filter plant 3 combined with Combustion gases from pre-heater furnace including auxillary gas-fired burner (800kw thermal input)	Oxides of Nitrogen (as NO ₂)	60 mg/m ³	4 hours	Six monthly	BS EN 14792
	Vent from bag filter plant 3	Particulate	For calibration purposes - no limit	4 hours	Annual	BS EN 13284-1
	Vent from bag filter plant 3	Particulate	5 mg/m ³	Daily average	Continuous	BS EN 15267-3 ⁽¹⁾
A13 (as shown on drawing number CL(50)01/B Ref 4)	Vent from holding furnace	Carbon Monoxide	150 mg/m ³	-	Annual	BS EN 15058
		Oxides of Nitrogen (as NO ₂)	60 mg/m ³	4 hour	Annual	BS EN 14792
		Particulate	5 mg/m ³	Daily average	Continuous	BS EN 15267-3 ⁽¹⁾

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
		Particulate	For calibration purposes - no limit	4 hours	Annual	BS EN 13284-1
A15 (as shown on drawing number CL(50)01/B Ref 3)	Vent from casting pit	N/A	N/A	N/A	N/A	N/A
A16 (NGR SJ 376 492)	Continuous homogeniser	N/A	N/A	N/A	N/A	N/A

Note 1: certification to the MCERTS performance standards indicates compliance with BS EN 15267-3

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 (Drawing number CL(50)01/B Ref 15)	Process effluent, land drainage and surface water	BOD	10 mg/l	-	Quarterly when emptying casting pit	SCA blue book 130 ISBN 0117522120
		Suspended solids	35 mg/l			BS EN 872
		pH	6-9			SCA blue book 14 ISBN 0117514284, or equivalent
		Temperature	25°C			Thermometer
		COD	125 mg/l			ISO 6060
		Ammoniacal Nitrogen	5 mg/l			BS 6068 – 2.11 ISO 7150-1
		Aluminium	0.5 mg/l			BS ISO 17294-1, or equivalent
		Total hydrocarbon oil	2 mg/l			SCA blue book 77 ISBN 0117517283, or equivalent

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W2 (Drawing number CL(50)01/B Ref 16)	Land drainage	N/A	N/A	-	-	-

Schedule 4 - Reporting

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

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air	A1, A12, A13	Every 3 months	01/07/2009
Parameters as required by condition 3.5.1.	A1, A12	Every 6 months	01/01/2009
	A13	Annually	01/01/2009
Emissions to water	W1	Every 3 months	01/07/2009
Parameters as required by condition 3.5.1			

Table S4.2: Annual production/treatment	
Parameter	Units
Secondary Aluminium produced	tonnes
Production of aluminium extrusion ingot	tonnes

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Total raw material used	Annually	tonnes
Dross and skimmings, used filters and swarf	Annually	tonnes
Bag plant residues and waste lime	Annually	tonnes

Table S4.4 Reporting forms		
Media/parameter	Reporting format	Date of form
Air	Form air 1a, b, c, d or other form as agreed in writing by Natural Resources Wales	24/06/2009
Water	Form water 1 or other form as agreed in writing by Natural Resources Wales	24/06/2009
Water usage	Form water usage 1 or other form as agreed in writing by Natural Resources Wales	24/06/2009
Energy usage	Form energy 1 or other form as agreed in writing by Natural Resources Wales	24/06/2009
Other performance indicators	Form performance 1 or other form as agreed in writing by Natural Resources Wales	24/06/2009

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	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any activity that gives rise to an incident or accident which significantly affects or may significantly affect the environment	
To be notified within 24 hours	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a permit condition	
To be notified within 24 hours	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

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

(c) In the event 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:	
To be notified within 24 hours	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B - to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 - Interpretation

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

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

“authorised officer” means any person authorised by Natural Resources Wales 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.

“Dioxins” means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzo-p-furans. For the determination of the toxic equivalence factor (TEQ) value stated as a release limit the mass concentrations of the following dioxins and furans have to be multiplied with their equivalence factors before summing.

Equivalence factor

2,3,7,8 Tetrachlordibenzodioxin (TCDD)	1
1,2,3,7,8 Pentachlordibenzodioxin (PeCDD)	0.5
1,2,3,4,7,8 Hexachlordibenzodioxin (HxCDD)	0.1
1,2,3,7,8,9 Hexachlordibenzodioxin (HxCDD)	0.1
1,2,3,6,7,8 Hexachlordibenzodioxin (HxCDD)	0.1
1,2,3,4,6,7,8 Heptachlordibenzodioxin (HpCDD)	0.01
Octachlordibenzodioxin (OCDD)	0.001
2,3,7,8 Tetrachlorodibenzobenzofuran (TCDF)	0.1
2,3,4,7,8 Pentachlorodibenzofuran (PeCDF)	0.5
1,2,3,7,8 Pentachlorodibenzofuran (PeCDF)	0.05
1,2,3,4,7,8 Hexachlorodibenzofuran (HxCDF)	0.1
1,2,3,7,8,9 Hexachlorodibenzofuran (HxCDF)	0.1
1,2,3,6,7,8 Hexachlorodibenzofuran (HxCDF)	0.1
2,3,4,6,7,8 Hexachlorodibenzofuran (HxCDF)	0.1
1,2,3,4,6,7,8 Heptachlorodibenzofuran (HpCDF)	0.01
1,2,3,4,7,8,9 Heptachlorodibenzofuran (HpCDF)	0.01
Octachlorodibenzofuran (OCDF)	0.001

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“hazardous property” has the meaning in Annex III of the Waste Framework Directive

“hazardous waste” has the meaning given in the Hazardous Waste (Wales) Regulations 2005 (as amended)

“hazardous substance” means a substance classified as hazardous as a consequence of fulfilling the criteria laid down in parts 2 to 5 of Annex I to Regulation (EC) No 1272/2008

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

“year” means calendar year ending 31 December.

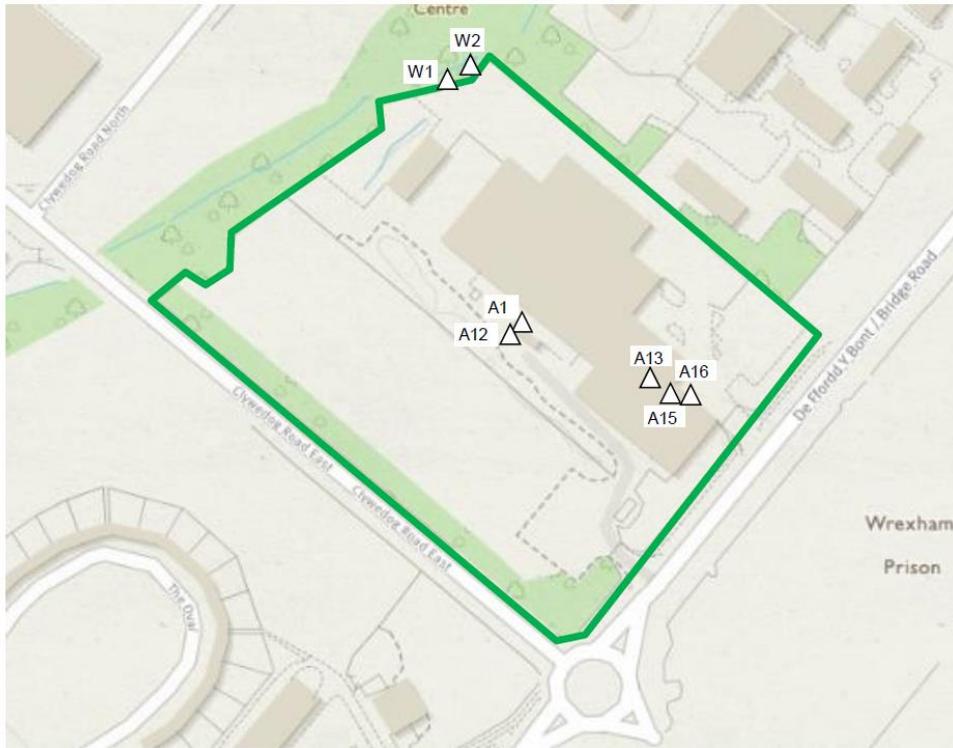
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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, 6% dry for solid 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

Schedule 7 – Site plan



<https://osmaps.ordnancesurvey.co.uk/>

END OF PERMIT