

## Variation with introductory note

The Environmental Permitting (England & Wales) Regulations 2007

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Wrexham Aluminium Works

Hydro Aluminium Deeside  
Bridge Road  
Wrexham Industrial Estate  
Wrexham  
LL13 9PS

Permit number  
BK3638IF

Variation Number  
EA/EPR/BK3638IF/V002

# **Wrexham Aluminium Works**

## **Variation Notice number**

### **EA/EPR/BK3638IF/V002**

## **Introductory note**

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

The purpose of this variation is to introduce reduced emission limits in line with BAT that have been achieved following issue of the permit. The operator was required to assess emissions of dioxins once the new melting furnaces were in use and implement any improvements found necessary to meet BAT standards. The variation also amends conditions to control noise to bring them in line with current permit conditions; and formalises changes to monitoring of water emissions that have previously been agreed in writing.

This permit document supercedes permit no. BK3638 in its entirety and includes the variation conditions under new permit number EA/EPR/BK3638IF/V002.

The main purpose of activities at the installation is production of secondary aluminium, by taking in primary and scrap aluminium in various forms, remelting it and adding alloying elements to provide product for resale. Typically up to 20% of the feed is primary aluminium ingot or sow. Installed production capacity is more than 50,000 tonnes per year.

The Casthouse comprises a 28 t capacity, gas-fired reverberatory melting furnace and a 28 t capacity, gas-fired, reverberatory holding / casting furnace.

Aluminium is delivered to site by road, the scrap coming in various forms - baled sheet, parts of window frames and other extruded items, bales of wire and lithographic sheet. About 6% of the total feed is polyester-painted extrusion scrap. The scrap forms are stored in dedicated areas within the factory. Scrap is inspected and / or sorted to remove off-spec or other undesirable materials before being fed to the furnace; the new melter has a purpose-built charging machine to allow the furnace door to be opened only for a very short interval while charging. The regenerative burners are controlled automatically and are at pilot whenever the door is opened.

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. Usually it enters the holding furnace, where sampling and alloying additions may be carried out. During outages of the main melter, the holding furnace may be used for melting aluminium, but for clean metal only.

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. The billets are water-cooled during casting, with most water recycled through a closed-loop system incorporating a water-cooled heat exchanger. To improve metallurgical structure, as cast billets are homogenised in one of two gas fired furnaces. This involves heating up to and holding at high temperature, then removal into another chamber where the billets are rapidly cooled with forced air. The billets are then sawn to length and stored outside ready for despatch to the customer.

Releases to air 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. Fumes from the dross press are ducted to the bag plants. The furnaces are designed to capture any fumes escaping through the furnace

doors by means of extracted hoods; any uncaptured fugitive emissions will normally leave the building through roof fans.

Releases to controlled water (there is no process discharge to sewer)

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.

Status Log of the permit		
Detail	Date	Response Date
Application BK3638	Received 7/09/01	
Response to Schedule 4 Part 1 Notice 11/12/01	Received 14/01/02	
Supplementary Information	Received 30/01/02	Map and slight amendment to waste storage information
Supplementary Information	Received 25/02/02	Further slight amendment to waste storage
Supplementary Information	Received 8/03/02	Clarification regarding monitoring details
Variation Notice EA/EPR/BK3638IF/V002	Issued 14/07/09	Agency initiated Permit review

End of Introductory Note





**Variation Notice**

The Environmental Permitting (England and Wales) Regulations 2007

## Variation Notice

Permit number

**BK3638IF**

Variation Number

**EA/EPR/BK3638IF/V002**

The Environment Agency hereby authorises, under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2007

**Hydro Aluminium Deeside** ("the operator"),

whose registered office is

**Bridge Road**

**Wrexham Industrial Estate**

**Wrexham**

**LL13 9PS**

company registration number **1786117**

to operate a facility comprising an installation at

**Bridge Road**

**Wrexham Industrial Estate**

**Wrexham**

**LL13 9PS**

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

Name

Date

	<i>14<sup>th</sup> July 2009.</i>
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David Powell

Authorised on behalf of the Agency

## **SCHEDULE 1 - CONDITIONS TO BE DELETED**

1. Conditions 1 to 11 inclusive and Schedules 1 to 3 inclusive, in PPC Permit number BK3638IF issued on 15<sup>th</sup> March 2002 to Hydro Aluminium Deeside.

## **SCHEDULE 2 - CONDITIONS TO BE AMENDED**

2. None

## **SCHEDULE 3- CONDITIONS TO BE ADDED**

3. Conditions 1 to 4 inclusive and Schedules 1 to 7 inclusive to be added, as attached, on pages 3 to 25 of this Variation Notice.

# **1 Management**

## **1.1 General management**

- 1.1.1 The activities shall be managed and operated:
- (a) in accordance with a management system, which identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances and closure and those drawn to the attention of the operator as a result of complaints; and
  - (b) by sufficient persons who are competent in respect of the responsibilities to be undertaken by them in connection with the operation of the activities.
- 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 Accident management plan**

- 1.2.1 The operator shall:
- (a) maintain and implement an accident management plan;
  - (b) review and record at least every 4 years or as soon as practicable after an accident, (whichever is the earlier) whether changes to the plan should be made;
  - (c) make any appropriate changes to the plan identified by a review.

## **1.3 Energy efficiency**

- 1.3.1 The operator shall:
- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
  - (b) review and record at least every 4 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.

## **1.4 Efficient use of raw materials**

- 1.4.1 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 4 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 appropriate further measures identified by a review.

## **1.5 Avoidance, recovery and disposal of wastes produced by the activities**

### **1.5.1 The operator shall:**

- (a) take appropriate measures to ensure that waste produced by the activities is avoided or reduced, or where waste is produced it is recovered wherever practicable or otherwise disposed of in a manner which minimises its impact on the environment;
- (b) review and record at least every 4 years whether changes to those measures should be made; and
- (c) take any further appropriate measures identified by a review.

## **2 Operations**

### **2.1 Permitted activities**

- 2.1.1 The operator is 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 2 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 the Agency.
- (b) If notified by the Agency that the activities are giving rise to pollution, the operator shall submit to the Agency for approval within the period specified, a revision of any plan specified in schedule 1, table S1.2 or otherwise required under this permit, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Agency.
- 2.3.2 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 hazard classification associated with the waste; and
- (e) the waste code of the waste.

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

## **2.5 Pre-operational conditions**

- 2.5.1 N/A

# **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 4 tables S4.1 and S4.2.
- 3.1.2 The limits given in schedule 4 shall not be exceeded.
- 3.1.3 Where a substance is specified in schedule 4 table S4.2 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 For periodic measurements, compliance shall be determined from the measured value after having subtracted the uncertainty error for the selected method of sampling and analysis for each relevant pollutant.

## **3.2 Fugitive emissions of substances**

- 3.2.1 Fugitive emissions of substances (excluding odour, noise and vibration) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including those specified in any approved fugitive 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 Agency that the activities are giving rise to pollution, submit to the Agency for approval within the period specified, a fugitive emissions management plan;

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

3.2.3 All liquids, 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 annoyance outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures, including 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 annoyance outside the site due to odour, submit to the Agency for approval within the period specified, an odour management plan;
- (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the 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 annoyance outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures, including 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 implement and maintain a noise management plan. This plan shall be reviewed and updated as necessary but at least every two years.

3.4.3 The operator shall carry out a noise monitoring and assessment exercise on an annual basis from the site at the nearest sensitive receptors during day and night as per BS4142:1997 and submit the full report and any recommendations to the Agency as soon as reasonably practicable following the report being made available.

### **3.5 Monitoring**

3.5.1 The operator shall, unless otherwise agreed in writing by the Agency, undertake the monitoring specified in the following tables in schedule 4 to this permit:

- (a) point source emissions specified in tables S4.1 and S4.2.

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 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing by the Agency.
- 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 4 tables S4.1 and S4.2 unless otherwise specified in that schedule.

## **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 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 All records, plans and the management system required to be maintained by this permit shall be held on the site.

### **4.2 Reporting**

- 4.2.1 All reports and notifications required by the permit shall be sent to the Agency using the contact details supplied in writing by the Agency
- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Agency by 31 January (or other date agreed in writing by the 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 annual production /treatment data set out in schedule 5 table S5.2; and
  - (c) the performance parameters set out in schedule 5 table S5.3 using the forms specified in table S5.4 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 the 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 5 table S5.1;

- (b) for the reporting periods specified in schedule 5 table S5.1 and using the forms specified in schedule 5 table S5.4 ; 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 4 years, submit to the Agency, within 6 months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

## 4.3 Notifications

- 4.3.1 The Agency shall be notified without delay following the detection of:
- (a) any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution;
  - (b) the breach of a limit specified in the permit; or
  - (c) any significant adverse environmental effects.
- 4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 6 to this permit within the time period specified in that schedule.
- 4.3.3 Where the 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 Agency when the relevant monitoring is to take place. The operator shall provide this information to the Agency at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 The 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;
- (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) the 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 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 Agency shall be notified within one month of:
- (a) a decision by the Secretary of State and the Welsh Ministers not to re-certify the agreement;
  - (b) a decision by either the operator or the Secretary of State and the Welsh Ministers to terminate the agreement; and
  - (c) any subsequent decision by the Secretary of State and the Welsh Ministers to re-certify such an agreement.

## **4.4 Interpretation**

- 4.4.1 In this permit the expressions listed in schedule 7 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 "without delay", 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
1	2.2 A(1) (b)	Melting aluminium and making alloys in furnaces, the plant having a melting capacity exceeding 20 t/day and at least one furnace or holding vessel exceeding 5 t capacity	Receipt of raw materials through to product export
<b>Directly Associated Activity</b>			
2	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
3	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
4	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

**Table S1.2 Operating techniques**

Description	Parts	Date Received
Application	The response to question 2.3 given in section B2.3 of the application	7/09/01
Response to schedule 4 Part 1 Notice	Response to questions 29 - 47	14/01/02
Further information attached to telefax message	Answer to question about continuous dust monitor in the new holder discharge stack	30/01/02
Proposed external scrap feedstock storage area 20/02/07 and 4/06/07		Agreed 5/06/07
Noise BAT review	Section titled "Actions to be taken by Hydro Aluminium Deeside"	18/07/08
Improvement Programme Requirement 9.9	All	2/02/04
Report on potential environmental improvements to a permitted installation (4.1.3 review)	All	16/03/05

**Table S1.3 Improvement programme requirements**

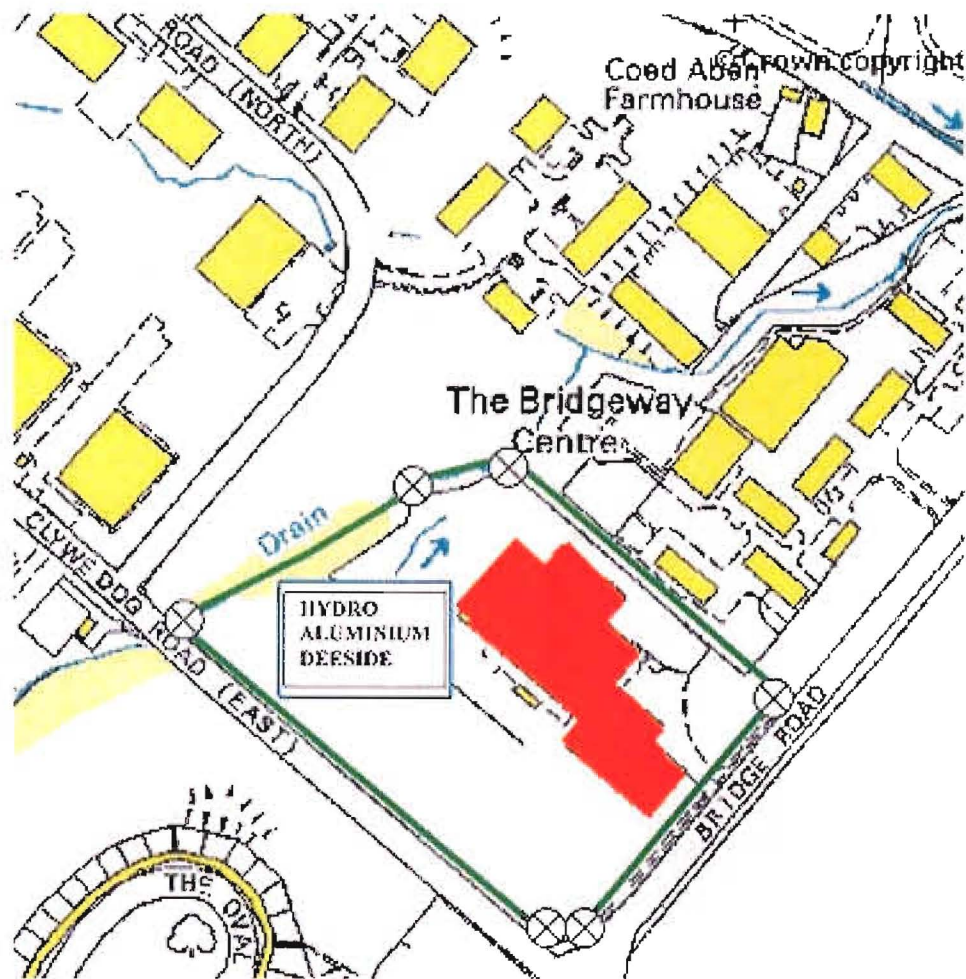
Reference	Requirement	Date
1	The Operator shall carry out a feasibility study into improving effluent monitoring and disposal facilities, including flow measurement and representative sampling, and shall submit a report of the study to the Agency. Following this study, and no later than 1 October 2002, 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
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 ("NO <sub>x</sub> "). From the data, the operator shall prepare a report showing representative NO <sub>x</sub> 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 NO <sub>x</sub> 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 NO <sub>x</sub> 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.	Refer to improvement condition 25
13	The Operator shall submit a report of a 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

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 what steps are necessary to keep releases to air below $0.1 \text{ ngm}^{-3}$ . 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
	The operator shall submit a report which:-	
18	<ul style="list-style-type: none"> <li>i identifies sources of ammoniacal nitrogen and BOD in discharges to water;</li> <li>ii reviews options for reducing these emission through minimisation at source or treatment, to below <math>2.5 \text{ mg/l}</math> for BOD and <math>1/5 \text{ mg/l}</math> for ammoniacal nitrogen; and</li> <li>iii assesses options for reducing emissions of metals, suspended solids and COD.</li> </ul> <p>If one of the options represents BAT the report shall contain a timetable for implementing by 1<sup>st</sup> June 2005 that option.</p>	Complete
19	<p>The operator shall submit a report reviewing the options for reducing the emissions of the pollutants listed below to below the concentrations indicated</p> <ul style="list-style-type: none"> <li>i oxides of nitrogen (as <math>\text{NO}_2</math>) <math>100 \text{ mgm}^{-3}</math> at standard conditions for releases from the melting furnaces prior to dilution with hood air.</li> <li>ii particulate matter <math>5 \text{ mgm}^{-3}</math> as monthly average of continuous monitor readings, from A1, A12 and A13.</li> </ul> <p>If one of the options represents BAT the report shall contain a timetable for implementing that option by 1 June 2005.</p>	Complete
20	The Operator shall review the costs and benefits of installing continuous emission monitors on release points A1 and A12, for measuring $\text{NO}_x$ , $\text{SO}_2$ , 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 standards 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 Guidance. (Horizontal Guidance Note IPPC H3). Confirmation shall be sent in writing to the Agency that a plan has been formulated and implemented.	30 <sup>th</sup> November 2009
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.	30 <sup>th</sup> September 2009
25	The Operator shall provide the Environment Agency with a timetable for producing and implementing robust and clear procedures / works 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.	31 <sup>st</sup> July 2009
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.	31 <sup>st</sup> December 2010
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.	30 <sup>th</sup> June 2011

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.	30 <sup>th</sup> October 2009
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## Schedule 2 - Site plan



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# Schedule 3 - Waste types, raw materials and fuels

Table S3.1 Raw materials and fuels	
Raw materials and fuel description	Specification





## Schedule 4 – Emissions and monitoring

**Table S4.1 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 Drawing number CL(50)01/B Ref 5	Vent from bag filter plants 1 and 2	Sulphur dioxide	25 mg / m <sup>3</sup>	2 hour average	Twice a year	BS EN 14791
		Volatile Organic Carbons (as Carbon)	20 mg / m <sup>3</sup>	4 hour	Twice a year	BS EN 12619:1999
		Gaseous fluorides (as HF)	1 mg / m <sup>3</sup>	-	Twice a year	BS ISO 15713
		Hydrogen chloride	10 mg / m <sup>3</sup>	-	Twice a year	BS EN 1911
		Dioxins	0.1 ng / m <sup>3</sup>	Minimum 4 hr	Twice a year	BS EN 1948
		Carbon Monoxide	100 mg / m <sup>3</sup>	-	Twice a year	BS EN 15058
		Oxides of nitrogen (as NO <sub>2</sub> )	60 mg / m <sup>3</sup>	4 hour	Twice a year	BS EN 14792
		Particulate	For calibration purposes- no limit	4 hour	Annual	BS EN 13284-1
		Particulate	5 mg / m <sup>3</sup>	Monthly average	continuous	BS EN 15267-3 <sup>(1)</sup>
		Particulate	10 mg / m <sup>3</sup>	Daily average	Continuous	BS EN 15267-3 <sup>(1)</sup>

**Table S4.1 Cont. 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
A4, A5, A6 Drawing number CL(50)01/B Ref 10, 11, 12	Vents from No 1 Homogenising furnace	N/A	N/A			
A7, A8, A9 Drawing number CL(50)01/B Ref 7, 8, 9	Vents from No 2 Homogenising furnace	N/A	N/A			

**Table S4.1 Cont. Point source emissions to air – emission limits and monitoring requirements**

Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method		
A12 Drawing number CL(50)01/B Ref 6	Vent from bag filter plant 3	Sulphur dioxide	25 mg / m <sup>3</sup>	2 hour average	Twice a year	BS EN 14791
		Volatile Organic Carbons (as Carbon)	20 mg / m <sup>3</sup>	4 hour average	Twice a year	BS EN 12619:1999
		Gaseous fluorides (as HF)	1 mg / m <sup>3</sup>	-	Twice a year	BS ISO 15713
		Hydrogen chloride	10 mg / m <sup>3</sup>	-	Twice a year	BS EN 1911
		Dioxins	0.1 ng / m <sup>3</sup>	Minimum 4 hr	Twice a year	BS EN 1948
		Carbon Monoxide	100 mg / m <sup>3</sup>	-	Twice a year	BS EN 15058
		Oxides of nitrogen (as NO <sub>2</sub> )	60 mg / m <sup>3</sup>	4 hours	Twice a year	BS EN 14792
		Particulate	For calibration purposes only	4 hours	Annual	BS EN 13284-1
		Particulate	5 mg / m <sup>3</sup>	monthlyaverage	continuous	BS EN 15267-3 <sup>(1)</sup>
		Particulate	10 mg / m <sup>3</sup>	Daily average	Continuous	BS EN 15267-3 <sup>(1)</sup>

Table S4.1 Cont. Point source emissions to air – emission limits and monitoring requirements						
Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method		
A13 Drawing number CL(50)01/B Ref 4	Vent from holding furnace	Carbon Monoxide	150 mg / m <sup>3</sup>	-	Annual	BS EN 15058
		Oxides of nitrogen (as NO <sub>2</sub> )	60 mg / m <sup>3</sup>	2 hour	Annual	BS EN 14792
		Particulate	10 mg / m <sup>3</sup>	Daily average	Continuous	BS EN 15267-3 <sup>(1)</sup>
		Particulate	For calibration purposes only	4 hours	Annual	BS EN 13284-1
A15 Drawing number CL(50)01/B Ref 3	Vent from Casting Pit	N/A	N/A			

Note 1 MCERTS certification is evidence of compliance to BS EN 15267-3

**Table S4.2 Point Source Emissions to Water – 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	Note 1.
		Suspended Solids	35 mg/l			
		pH	6 – 9			
		Temperature	25 °C			
		COD	125 mg/l			
		Ammoniacal Nitrogen	5 mg /l			
		Chloride	180 mg/l			
		Aluminium	0.5 mg/l			
		Total hydrocarbon Oil	2mg/l			
		Flow	N/A			
W2 Drawing number CL(50)01/B Ref 16	Land Drainage	N/A	N/A			

Note 1. methods to be agreed.

## Schedule 5 - Reporting

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

**Table S5.1 Reporting of monitoring data**

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air	A1, A12, A13	Every 3 months	01/07/09
Parameters as required by condition 3.5.1.	A1, A12,	Every 6 months	01/01/09
	A13	Annually	01/01/09
Emissions to water	W1	Every 3 months	01/07/09
Parameters as required by condition 3.5.1			

**Table S5.2: Annual production/treatment**

Parameter	Units
Secondary Aluminium produced	tonnes

**Table S5.3 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 S5.4 Reporting forms**

Media/parameter	Reporting format	Date of form
Air	Form air 1a, b, c, d or other form as agreed in writing by the Agency	24/06/09
Water	Form water 1 or other form as agreed in writing by the Agency	24/06/09
Water usage	Form water usage1 or other form as agreed in writing by the Agency	24/06/09
Energy usage	Form energy 1 or other form as agreed in writing by the Agency	24/06/09
Other performance indicators	Form performance 1 or other form as agreed in writing by the Agency	24/06/09

# Schedule 6 - 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 malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution**

#### **To be notified within 24 hours of detection**

Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

### **(b) Notification requirements for the breach of a limit**

#### **To be notified within 24 hours of detection unless otherwise specified below**

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) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
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.	

<b>Name*</b>	
<b>Post</b>	
<b>Signature</b>	
<b>Date</b>	

\* authorised to sign on behalf of Hydro Aluminium Limited



## Schedule 7 - Interpretation

"*accident*" means an accident that may result in pollution.

"*annually*" means once every calendar year.

"*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 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.

"*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 Tetrachlorodibenzofuran (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

"*emissions to land*", includes emissions to groundwater.

"*EP Regulations*" means The Environmental Permitting (England and Wales) Regulations SI 2007 No.3538 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

"*fugitive emission*" means an emission to air, water or land from the activities which is not controlled by an emission or background concentration limit.

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

"*MCERTS*" means the Environment Agency's Monitoring Certification Scheme.

"*quarter*" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"*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:

- (a) 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
- (b) 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

END OF PERMIT



Permit Number: EA/EPR/BK3638IF/V002

Operator: Hydro Aluminium Deeside

Facility: Wrexham Aluminium Processing

Form Number: Air1a

Reporting of emissions to air for the quarter from ..... to .....

Emission Point	Substance / Parameter	Emission Limit Value	Month 1 Maximum Daily average value	Month 2 Maximum Daily average value	Month 3 Maximum Daily average value
A1	Particulate Matter	10 mg/m <sup>3</sup> (daily average)			
A12	Particulate Matter	10 mg/m <sup>3</sup> (daily average)			
A13	Particulate Matter	10 mg/m <sup>3</sup> (daily average)			

Emission Point	Substance / Parameter	Emission Limit Value	Month 1 Average of monthly average values	Month 2 Average of monthly average values	Month 3 Average of monthly average values
A1	Particulate Matter	5 mg/m <sup>3</sup> (monthly average)			
A12	Particulate Matter	5 mg/m <sup>3</sup> (monthly average)			
A13	Particulate Matter	-			

Signed .....  
(Authorised to sign as representative of Operator)

Date.....

Results have been corrected as per condition 3.1.4

Permit Number: EA/EPR/BK3638IF/V002

Operator: Hydro Aluminium Deeside

Facility: Wrexham Aluminium Works

Form Number: Air1b

Reporting of emissions to air for the period from DD/MM/YYYY to DD/MM/YYYY

Emission Point	Substance / Parameter	Emission		Reference Period	Result	Test Method	Sample Date and Times	Uncertainty
		Limit Value						
A1	Particulates	-						
A1	sulphur dioxide	25mg/m <sup>3</sup>						
A1	Volatile Organic Compounds	20mg/m <sup>3</sup>						
A1	Gaseous fluorides (as HF)	1mg/m <sup>3</sup>						
A1	Hydrogen chloride	10mg/m <sup>3</sup>						
A1	Dioxins	0.1ng/m <sup>3</sup>						
A1	Carbon monoxide	100mg/m <sup>3</sup>						
A1	Oxides of nitrogen	60mg/m <sup>3</sup>						

Signed .....  
(Authorised to sign as representative of Operator)

Date.....

Results have been corrected as per condition 3.1.4

Permit Number: EA/EPR/BK3638IF/V002

Operator: Hydro Aluminium Deeside

Facility: Wrexham Aluminium Works

Form Number: Air1c

Reporting of emissions to air for the period from DD/MM/YYYY to DD/MM/YYYY

Emission Point	Substance / Parameter	Emission		Reference Period	Result	Test Method	Sample Date and Times	Uncertainty
		Limit Value						
A12	Particulates	-						
A12	sulphur dioxide	25mg/m <sup>3</sup>						
A12	Volatile Organic Compounds	20mg/m <sup>3</sup>						
A12	Gaseous fluorides (as HF)	1mg/m <sup>3</sup>						
A12	Hydrogen chloride	10mg/m <sup>3</sup>						
A12	Dioxins	0.1ng/m <sup>3</sup>						
A12	Carbon monoxide	100mg/m <sup>3</sup>						
A12	Oxides of nitrogen	60mg/m <sup>3</sup>						

Signed .....  
(Authorised to sign as representative of Operator)

Date.....

Results have been corrected as per condition 3.1.4

Permit Number: EA/EPR/BK3638IF/V002

Operator: Hydro Aluminium Deeside

Facility: Wrexham Aluminium Works

Form Number: Air1d

Reporting of emissions to air for the year.....

Emission Point	Substance / Parameter	Emission		Reference Period	Result	Test Method	Sample Date and Times	Uncertainty
		Limit Value						
A13	Particulates	-						
A13	Carbon monoxide	150mg/m <sup>3</sup>						
A13	Oxides of nitrogen	60mg/m <sup>3</sup>						

Signed .....  
(Authorised to sign as representative of Operator)

Date.....

Results have been corrected as per condition 3.1.4

Permit Number: EA/EPR/BK3638IF/V002

Operator: Hydro Aluminium Limited

Facility: Wrexham Aluminium Works

Form Number: Water1

Reporting of emissions to water (other than to sewer) and land for the period from DD/MM/YYYY to DD/MM/YYYY

Emission Point	Substance / Parameter	Emission		Reference Period	Result	Test Method	Sample Date and Times	Uncertainty
		Limit Value						
W1	BOD	10 mg/l						
W1	Suspended Solids	35 mg/l						
W1	pH	6 – 9						
W1	COD	125 mg/l						
W1	Ammoniacal Nitrogen	5 mg /l						
W1	Chloride	180 mg/l						
W1	Aluminium	0.5 mg/l						
W1	Total hydrocarbon Oil	2mg/l						
W1	Temperature	25 °C						
W1	Flow	N/A						

Signed .....  
(Authorised to sign as representative of Operator)

Date.....

Results have been corrected as per condition 3.1.4



Permit Number: EA/EPR/BK3638IF/V002

Operator: Hydro Aluminium Limited

**Facility:** Wrexham Aluminium Works

**Form Number:** WaterUsage1

**Reporting of Water Usage for the year ....**

Water Source	Usage (m <sup>3</sup> /year)	Specific Usage (m <sup>3</sup> /unit output)
Mains water		
TOTAL WATER USAGE		

Operator's comments :

Signed .....  
(authorised to sign as representative of Operator)

Date.....

Permit Number: EA/EPR/BK3638IF/V002

Operator: Hydro Aluminium Limited

**Facility: Wrexham Aluminium Works**

**Form Number: Energy1**

**Reporting of Energy Usage for the year ....**

Energy Source	Energy Usage		Specific Usage (MWh/unit output)
	Quantity	Primary Energy (MWh)	
Electricity *	MWh		
Natural Gas	MWh		
TOTAL	-		

\* Conversion factor for delivered electricity to primary energy = 2.6

Operator's comments :

Signed .....  
(Authorised to sign as representative of Operator)

Date.....

Permit Number: EA/EPR/BK3638IF/V002

Operator: Hydro Aluminium Limited

Facility: Wrexham Aluminium Works

Form Number: Performance1

Reporting of other performance indicators for the period DD/MM/YYYY to DD/MM/YYYY

Parameter	Tonne	Tonne / Tonne Product
Total raw material used (tonnes)		
Dross and skimmings, used filters and swarf produced		
Bag plant residues and waste lime		
Operator's comments :		

Signed .....  
(Authorised to sign as representative of Operator)

Date.....

