ASIANTAETH YR AMGYLCHEDD
ENVIRONMENT AGENCY

Permit with introductory note

Pollution Prevention and Control Regulations 2000

Anglesey Aluminium Metal Ltd
Penrhos Works
P.O. Box 4
Holyhead
Anglesey, LL65 2UJ

Permit number

BL1100

Asiantaeth yr Amgylchedd Cymru
Ffordd Caer, Bwcle, Sir y Fflint CH7 3AJ

Environment Agency Wales
Chester Road, Buckley, Flintshire CH7 3AJ

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Introductory note

This introductory note does not form a part of the Permit

The following Permit is issued under Regulation 10 of the Pollution Prevention and Control Regulations 2000 (S.I.2000 No.1973) ("the PPC Regulations") to operate an installation carrying out one or more of the activities listed in Part 1 to Schedule 1 of those Regulations, to the extent authorised by the Permit.

The Permit includes conditions that have to be complied with. It should be noted that aspects of the operation of the installation which are not regulated by those conditions are subject to the condition implied by Regulation 12(10) of the PPC Regulations, that the Operator shall use the best available techniques for preventing or, where that is not practicable, reducing emissions from the installation.

Techniques include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.

Brief description of the installation regulated by this permit

The main purpose of the activities at the installation is to produce up to 155,000 tonnes per annum of aluminium metal from alumina by the Hall-Héroult electrolytic process. The metal is then cast into secondary products for sale - rolling ingot, extrusion billet or remelt ingot. The electrolytic process uses carbon anodes which are manufactured on site and consumed as part of the smelting of aluminium oxide. Anode production capacity is approximately 300 anode blocks per day.

Raw Materials Receipt: Liquid coal tar pitch, at a temperature of about 200°C, is delivered in road tankers and off-loaded to a series of two storage tanks and a buffer "day" tank, all of which are bunded. The tankers are off-loaded by pumping in order to reduce aerosol generation, particularly at the end of transfers. Calcined petroleum coke is delivered both by sea (using the jetty and underground transfer system also used for receipt of alumina) and by rail.

Imported alumina arrives at the jetty in bulk carriers, and is then off-loaded by a vacuum transfer system to a gallery. It is then moved on a conveyor belt system via a transfer terminal and underground tunnel to storage on the main part of the site. Before feeding to the smelting process, it is used to dry-scrub gaseous fluorides from the gases extracted from the electrolytic cells. Other materials fed to the cells include aluminium fluoride, cryolite, fluorspar and soda ash - these are generally delivered by road, occasionally by rail.

Green Carbon Plant: Covered, extracted conveyor belt systems transfer the coke from storage silos to the Green Carbon plant, where it is reduced in size, using a hammer mill and roll crusher. For process optimisation, two size fractions are produced – "coarse" and "fines" - and these are stored in buffer silos prior to use.

Cleaned anode butts from the reduction process pass through a primary "jaw" crusher and secondary and tertiary "cone" crushers, followed by screening with recycle to obtain the correct size fraction. Off-specification unbaked anodes and anode paste also pass through this crushing system, and the crushed product is stored in dedicated bins prior to mixing for recycle.

Weighed quantities of crushed butts, coarse and fine coke are added to one of eight hot-oil-jacketed, double-sigma blade mixers, which are initially extracted to a dust collection system. After addition of the dusty materials, the aggregate is dry-mixed (with no ventilation extract) until, at the required temperature, operation of a flop gate switches extract to the pitch fume collection system, and molten pitch is added. After further mixing, the hot paste is dumped on to a conveyor belt and moved to a carousel three-stage vibration former, incorporating the anode mould. The newly formed anode block is then cooled, using firstly a water spray, then by immersion in a water pool, before storage prior to baking.

Extracted air containing pitch fume from the pitch weigh pot, mixers (after pitch addition), tail conveyors, paste discharge points, paste conveyor and vibration former, is dry-scrubbed using fines-fraction petroleum coke. The cleaned air is discharged via pulsed-jet-cleaned bag filters and a stack, and the pitch-contaminated solids go forward into the main part of the green carbon process.

Anode Baking Plant: This consists of a 48-section ring furnace, fired by natural gas. Each section is divided into seven pits by flues which run longitudinally, and each pit can hold twelve anode blocks. At any time, three isolated groups of twelve sections of the furnace are covered by movable fire spreads, comprising blown air inlet, gas injection and exhaust manifolds. These are moved at intervals between 20 and 36 hours, such that the green anodes are successively preheated, baked at up to 1200°C and cooled. Pitch volatiles, released from the green anodes during preheating, are drawn through the porous flue walls to join the combustion gases passing to the discharge stack. Fugitive releases are minimised by covering the anodes with packing coke during the baking process.

Rodding Room: Baked anodes are transferred to a cleaning station for removal of residual packing coke, then transferred to the rodding room, where anode rod assemblies are attached prior to use of the anode in the electrolytic reduction process. The anodes are connected to conducting, hanger rods with the aid of a cast iron collar to ensure a secure hold and good electrical contact, and are also sprayed with aluminium to help minimise air-burn in the cells. The iron, which includes that recovered from recycled spent anode butts, is melted in one of three electric induction furnaces.

The rodding room is also where anode butts are brought after coarse cleaning in the pot rooms. Shot-blasting is used to remove as much remaining bath material as possible; efficient cleaning is important to reduce fluoride emissions from the baking plant, minimise damage to the baking furnace flues, and extend anode life by reducing "air-burn" (which can be made worse if anodes contain excessive sodium). A butts press strips the butts from the anode assemblies, which then go for removal of the cast iron collars, cleaning and reuse. The cleaned anode butts are transferred to the green carbon plant for crushing and incorporation into new anodes.

Reduction: The plant has space for up to a total of 320 electrolytic cells but currently has 316, arranged in rows of 79 per pot-room and with each pair of pot rooms comprising a single pot line. In each of the two lines, the 158 cells are connected together in series. The principle of operation is the electrolysis of alumina, with aluminium ions being drawn to a carbon cathode at the base of the cell and oxide ions migrating to the carbon anodes at the cell top. Molten aluminium metal collects above the cathode, and oxygen formed at the anodes combines with some of the carbon to form carbon dioxide gas. As the anodes are consumed, they are lowered into the cell until their reduced size necessitates replacement. Overall, the reaction can be described as follows:-

$$2Al_2O_3 + 3C \rightarrow 4Al + 3CO_2$$

For electrolysis, it is necessary to achieve dissociation of the alumina in a conducting solution, and the electrolyte used is based on cryolite (sodium aluminium fluoride, Na_3AlF_6). The cells operate at about 960°C and their voltages are monitored continuously by computer which, in turn, controls the addition of alumina. At regular intervals, molten

metal is syphoned out from one end of the cells into crucibles, which are skimmed and taken to the adjacent metal products building.

Molten metal from the crucibles may be either poured directly into preheated sow moulds or transferred to one of three direct chill casting complexes, each of which comprises a charging furnace, holding furnace and casting pit. Alloying additions and dross skimming take place in the charging furnace, and metal is then transferred to the holding furnace and tapped to the casting station. If producing rolling ingot or extrusion billet, argon may be blown through as an inert flux; in the case of extrusion billet, this is in a "SNIF" unit between the holding furnace and casting pit (SNIF stands for Spinning Nozzle Inert Fluxing). Product may then be annealed in a homogenising furnace, to which small quantities of chemical may be added to enhance surface properties. All furnaces in the metal products building are heated by natural gas.

Spent anodes are withdrawn from cells and allowed to cool. They are then cleaned in units known as the Prebreaker station and Glama cleaning station, where firstly a breaker bar dislodges frozen bath material from the anode yoke, then the anode butt is cleaned all over using a remotely-controlled chipping hammer. The cleaning units are extracted via filters to minimise dust emissions, and the dust and crushed, reclaimed bath material are recycled. Control of cell chemistry results in a net generation of excess bath material, which is presently sold to other primary aluminium smelters. The butts are then transferred, still on their anode rods, to the rodding room for further cleaning and recycle.

Releases to air

There are some 96 release points, grouped amongst the following areas:-

PLANT AREA	MAIN PROCESS / ACTIVITIES
11	Jetty and main conveyor
12	Site alumina materials handling
13	Site coke materials handling
31	Green carbon plant (including pitch storage tanks)
33	Anode baking plant
34	Rodding room
35	Butts crushing
41	Pot rooms
42	Bag house
43	Metal Products
44, 55, 56	Other areas of the plant

The main potentially polluting releases from anode manufacture are pitch fume from the green carbon and anode baking plant, and fluorides from the anode baking plant. The molten pitch used in making the paste for green anode blocks emits fume, including polycyclic aromatic hydrocarbons (such as benzo-a-pyrene). The main sources of fume in the green carbon plant are vented to atmosphere via a pitch fume scrubber; this is a dry scrubber using a fines fraction of coke for scrubbing. The three storage tanks have cartridge carbon filters which absorb pitch fume from gases released by tank breathing, and waste carbon from the scrubber and from cartridge filter changing is used as packing coke in the anode baking plant, where the absorbed pitch will be destroyed by combustion. Because a significant fraction of each new anode is made up of butt material recycled from the electrolytic process, green anodes contain fluoride from the electrolyte, most of which is released as gas and particulate matter during the anode baking process. The anode bake extract gases pass through cyclones, although these produce only limited abatement.

From aluminium production, the main releases are from the bag house via the main stack and from the pot room roofs. The former comprise gases from the electrolytic cells which have been "dry-scrubbed" with alumina, followed by fabric filtration to recover the alumina, which is then used in the process. The scrubbing removes fluorides but other

gases, including fluorinated hydrocarbons and sulphur dioxide, pass through unabated. Gases not captured by the cell shields pass out of the pot room roofs unabated, and releases from areas 34 and 43 are also generally unabated. Discharges include combustion products (such as carbon monoxide and oxides of nitrogen) and particulates. Remaining releases are mostly abated using fabric filters to capture particulate material for recycle to the process.

Releases to water: There are three site effluent systems:-

Trade effluent (mostly cooling water)
Sewage effluent
Storm water drainage

The discharges may be sampled near the North corner of the site, and all pass to the sea in Holyhead Bay. Site storm water drainage discharges just below the high water mark, trade and sewage effluent below the low water mark. In addition, water pumped out from the underground tunnel is discharged to sea unsampled.

Releases to land and other releases: The following additional wastes arise from the process:-

Spent pot liner	Miscellaneous plant operational and maintenance wastes
Carbon Fines waste	Coal tar pitch fume condensate
Waste filter bags	Contaminated waste water from the anode cooling pond

Spent pot liner results from stripping out failed cathode blocks from an electrolytic cell which has reached the end of its life prior to rebuild. It contains compounds which can react with water to generate methane, and must therefore be kept dry in storage. Waste filter bags may contain fluorides and, like spent pot liner, are considered to be special wastes. They are disposed of to licensed landfill sites, as are most of the miscellaneous operational and maintenance wastes.

Carbon fines waste results from the shot blast cleaning of spent anode butts, and contains approximately 68% carbon, 15% alumina, 15% electrolyte bath and 2% iron shot. It is disposed of as special waste to licensed landfill. Coal tar pitch fume condensate results from scheduled clean-out of the pitch fume extraction ducts; it is also sent via licensed contractors to landfill after treatment. Most of the miscellaneous operational and maintenance wastes are also disposed of to licensed landfill sites. Waste water from the anode cooling pond is removed in tankers, also by a licensed contractor.

Other PPC Permits relating to this installation

Permit holder	Permit Number	Date of Issue
N/A	None	N/A

Superseded Licences / Consents / Authorisations relating to this installation

Holder	Reference Number	Date of Issue
Anglesey Aluminium Metal Ltd	AS6799 / BD7456	27/11/95
Anglesey Aluminium Metal Ltd	AT1865 / BD7464	27/11/95

Talking to us

If you contact the Agency about this Permit please quote the Permit Number.

The Operator should use the Emergency Hotline telephone number (0800 80 70 60) or any other number notified to it to give a notification under condition 5.1.1.

Confidentiality

The Permit requires the Operator to provide information to the Agency. The Agency will place the information onto the public registers in accordance with the requirements of the PPC Regulations. If the Operator considers that any information provided is commercially confidential, it may apply to the Agency to have such information withheld from the register as provided in the PPC Regulations. To enable the Agency to determine whether the information is commercially confidential, the Operator should clearly identify the information in question and should specify clear and precise reasons.

Variations to the permit

This Permit may be varied in the future. The Status Log within the Introductory Note to any such variation will include summary details of this Permit, variations issued up to that point in time and state whether a consolidated version of the Permit has been issued.

Surrender of the permit

Before this Permit can be wholly or partially surrendered, an application to surrender the Permit has to be made. For the applicant to be successful, they would have to be able to demonstrate to the Agency, in accordance with Regulation 19 of the PPC Regulations, that there is no pollution risk and that no further steps are required to return the site to a satisfactory state.

Transfer of the permit or part of the permit

Before the Permit can be wholly or partially transferred to another person, a joint application to transfer the Permit has to be made by both the existing and proposed holders, in accordance with Regulation 18 of the PPC Regulations. A transfer will be allowed unless the Agency considers that the proposed holder will not be the person who will have control over the operation of the installation or will not ensure compliance with the conditions of the transferred Permit. If the Permit authorises the carrying out of a specified waste management activity, then there is a further requirement that the transferee is considered to be a "fit and proper person" to carry out that activity.

Status Log

Detail	Date	Comment
Application BL1100	Received 27/12/01	
Response to Schedule 4 Part 1 Notice	Received 24/6/02	Schedule 4 Information Notice dated 15/4/02
Supplementary Information	Received 2/9/02	Amended earlier Schedule 4 Part 1 Notice Responses
Response to Schedule 4 Part 1 Notice	Received 2/9/02	Schedule 4 Information Notice dated 3/5/02
Supplementary Information	Received 5/11/02	Amended earlier Schedule 4 Part 1 Notice responses
Permit BL1100	Determined 30/5/03	

End of introductory note.

Permit
Pollution Prevention and Control Regulations 2000

ASIANTAETH YR AMGYLCHEDD
ENVIRONMENT AGENCY

Permit

Permit number
BL1100

The Environment Agency (the Agency) in exercise of its powers under Regulation 10 of the Pollution Prevention and Control Regulations 2000 (S.I. 2000 No. 1973), hereby authorises

Anglesey Aluminium Metal Limited ("the Operator"),

whose Registered Office is

6 St James's Square
London
SW1Y 4LD

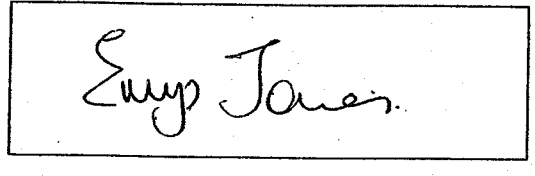
Company registration number 909645

to operate an Installation at

Penrhos Works
P.O. Box 4
Holyhead
Anglesey
LL65 2UJ

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

Signed



Mr E Jones

Authorised to sign on behalf of the Environment Agency

Date

30 May 2003

Conditions

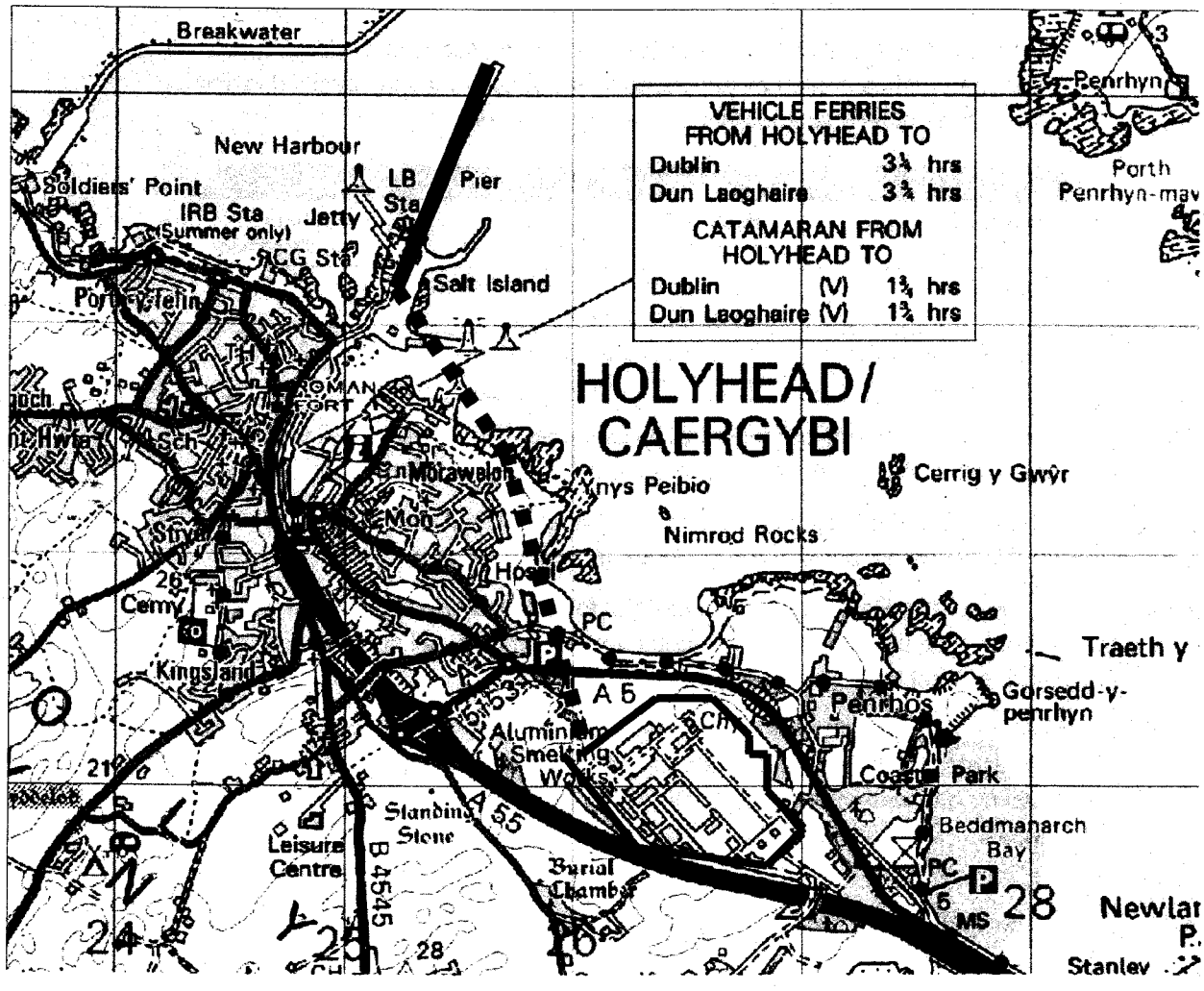
1 The permitted installation

1.1.1 The Operator is authorised to carry out the activities and/or the associated activities specified in Table 1.1.1.

Table 1.1.1

Activity under Schedule 1 of the Regulations/ Associated Activity	Description of specified activity	Schedule 1 Activity Reference (if applicable)	Limits of specified activity
Raw materials handling	Unloading, transfer systems and raw material storage	Directly associated activity	All ship, rail and road receipt and transfer facilities (including underground tunnel). Associated dust abatement systems.
Heating tar or bitumen for the manufacture of electrodes	Crushing / blending raw materials, green anode pressing and baking	6.3 A(1)(a)(ii)	Raw and recycled material storage, through to anode delivery to rodding room. Abatement systems.
Melting iron using an induction furnace	Melting fresh and recycled cast iron for use in rodding process	2.1 B(b)(ii)	Storage of raw materials through to pouring iron, releases to air and waste arisings.
Anode rodding	Attaching anodes to hangers, and aluminium spraying	Directly associated activity	Receipt of baked anodes through to delivery of anode assemblies to pot rooms. All abatement systems.
Cleaning and recycling of anode butts	Breaking butts, cleaning butts and hangers, butts crushing	Directly associated activity	Butt storage through to recycle and interim storage of crushed products and wastes. Abatement systems.
Producing Aluminium by electrolytic activities	Electrolysis of alumina dissolved in cryolite in pot rooms	2.2 A(1)(a)	Transfer of alumina and other materials from storage, fume treatment plant, through to holding, casting, heat treatment and storage for export of aluminium products.
Melting recovered aluminium products	Recycling clean, in-house aluminium scrap	2.2 A(1)(b)	Storage of off-specification aluminium through to its addition to relevant charging and holding furnaces.
Ventilation air systems	Dust collector, fume treatment and ventilation air extract systems additional to those forming part of Schedule 1 activities.	Directly associated activity	From point of arising of aerial discharges through to entry into atmosphere, including all discharge systems and abatement equipment.
Water discharges to controlled waters	Discharge of process water, site drainage and sewage treatment effluent from the installation.	Directly associated activity	From points of arising to points of entry to sea.
Waste collection and storage systems	Accumulation and storage of process wastes from the installation.	Directly associated activity	From points of arising (including drossing operations, dross pressing, cell dismantling, bake furnace rebuild etc.) to points of export from the installation.

1.1.2 The activities authorised under condition 1.1.1 shall not extend beyond the Site, being the ship unloading facility, underground tunnel and main site areas shown highlighted and edged in *blue* on the plan below



1.1.3 There are no pre-operation conditions

2 Operational Matters

2.1 Management techniques and control

2.1.1 The Permitted Installation shall, subject to the conditions of this Permit, be managed and controlled as described in the documentation specified in Table 2.1.1, or as otherwise agreed in writing by the Agency.

Table 2.1.1 : Management and control

Description	Parts	Date Received
Application	The response to question 2.1 given in section B2.1 of the application	27/12/01
Response to Schedule 4 Part 1 Notice	Response to questions 6 – 9	24/6/02

2.1.2 All plant, equipment and technical means used in operating the Permitted Installation shall be maintained in good operating condition.

2.1.3 The Permitted Installation shall be supervised by staff who are suitably trained and fully conversant with the requirements of this Permit.

2.1.4 A copy of this Permit and those parts of the application referred to in this Permit shall be available, at all times, for reference by all staff carrying out work subject to the requirements of the Permit.

2.1.5 All staff shall be fully conversant with those aspects of the Permit conditions which are relevant to their duties, and shall be provided with appropriate training and written operating instructions to enable them to carry out their duties.

2.2 Raw materials (including water)

2.2.1 The Operator shall, subject to the conditions of this Permit, use raw materials (including water) as described in the documentation specified in Table 2.2.1, or as otherwise agreed in writing by the Agency.

Table 2.2.1 : Raw materials (including water)

Description	Parts	Date Received
Application	The response to question 2.2 given in section B2.2 of the application	27/12/01
Response to Schedule 4 Part 1 Notice	Response to questions 10 – 15, 17 – 23, 25	24/6/02
Supplementary Information	Items 13 and 16	2/9/02
Supplementary Information	Item 24	5/11/02

2.3 Operating Techniques

2.3.1 The Permitted Installation shall, subject to the conditions of this Permit, be operated using the techniques and in the manner described in the documentation specified in Table 2.3.1, or as otherwise agreed in writing by the Agency.

Table 2.3.1: Operating techniques

Description	Parts	Date Received
Application	The response to question 2.3 given in section B2.3 of the application	27/12/01
Response to Schedule 4 Part 1 Notice	Response to questions 26 – 28, 30 – 35, 38 – 48, 50, 52 – 55, 57	24/6/02
Supplementary Information	Items 28, 29, 36, 37, 56	2/9/02
Supplementary Information	Items 47, 49, 53	5/11/02

2.3.2 The sulphur content of the green (unbaked) anodes shall not exceed 2.4% by weight.

2.4 Groundwater protection

2.4.1 The Permitted Installation shall, subject to the conditions of this Permit, be controlled as described in the documentation specified in Table 2.4.1, or as otherwise agreed in writing by the Agency.

Table 2.4.1: Groundwater protection

Description	Parts	Date Received
Application	The response to question 2.4 given in section B2.4 of the application	27/12/01
Response to Schedule 4 Part 1 Notice	Response to questions 59, 61 – 63	24/6/02
Supplementary Information	Item 58 / 60	2/9/02

2.5 Waste handling and storage

2.5.1 The Operator shall, subject to the conditions of this Permit, handle and store waste as described in the documentation specified in Table 2.5.1, or as otherwise agreed in writing by the Agency.

Table 2.5.1: Waste handling and storage

Description	Parts	Date Received
Application	The response to question 2.5 given in section B2.5 of the application	27/12/01
Response to Schedule 4 Part 1 Notice	Response to questions 64 – 68. Response to question 71 (first table only)	24/6/02
Supplementary Information	Item B2.5 Waste Handling	2/9/02

2.5.2 Waste materials specified in Table 2.5.2 shall only be stored on the site in the location and manner specified in that Table.

Table 2.5.2: Waste stored on site

Description of Waste	Location of Storage on Site	Manner of Storage	Storage Conditions
Spent pot-lining	Spent lining building	Under cover	Segregated from other materials, kept dry
Carbon fines	Spent lining building	Under cover	Segregated from other materials, kept dry
Surplus bath material	Spent lining building	Under cover	Segregated from other materials, kept dry
Waste oil	SW side of site, near railway line	Enclosed tank	In bunded area
Dross / skimmings	Dross shed	Under cover	Segregated from other materials, kept dry
Metal, refractories, rubber, wood	Reclamation yard	In area with restricted access	Waste streams stored within individual bays
Other wastes, as listed in section B2.5 of the application and appropriate schedule 4 question responses	Various locations both within plant buildings and in outside areas	Contained appropriately	So as to minimise dust generation, avoid chemical reaction and prevent spread of contamination

2.6 Waste recovery and disposal

2.6.1 The Operator shall, subject to the conditions of this Permit, recover and dispose of waste as described in the documentation specified in Table 2.6.1, or as otherwise agreed in writing by the Agency.

Table 2.6.1: Waste recovery and disposal

Description	Parts	Date Received
Response to Schedule 4 Part 1 Notice	Response to questions 69 - 70	24/6/02
Supplementary Information	Item B2.6, replacing the response to question 2.6 given in section B2.6 of the application	2/9/02

2.7 Energy Efficiency

2.7.1 The Operator shall, subject to the conditions of this Permit, use energy as described in the documentation specified in Table 2.7.1, or as otherwise agreed in writing by the Agency.

Table 2.7 1: Energy efficiency

Description	Parts	Date Received
Application	The response to question 2.7 given in section B2.7 of the application	27/12/01
Response to Schedule 4 Part 1 Notice	Response to questions 73 – 74	2/9/02
Supplementary Information	Items 75 – 77	5/11/02

2.7.2 The Operator shall have an energy efficiency plan and shall update it annually.

2.8 Accident prevention and control

2.8.1 The Operator shall, subject to the conditions of this Permit, prevent and limit the consequences of accidents as described in the documentation specified in Table 2.8.1, or as otherwise agreed in writing by the Agency.

Table 2.8.1 : Accident prevention and control

Description	Parts	Date Received
Application	The response to question 2.8 given in section B2.8 of the application	27/12/01
Response to Schedule 4 Part 1 Notice	Response to questions 78 – 82, 84	2/9/02
Supplementary Information	Item 83	5/11/02

2.9 Noise and vibration

2.9.1 The Operator shall, subject to the conditions of this Permit, control noise and vibration as described in the documentation specified in Table 2.9.1, or as otherwise agreed in writing by the Agency.

Table 2.9.1 : Noise and vibration

Description	Parts	Date Received
Application	The response to question 2.9 given in section B2.9 of the application	27/12/01
Response to Schedule 4 Part 1 Notice	Response to questions 85 - 88	2/9/02

2.10 Monitoring

2.10.1 The Operator shall, subject to the conditions of this Permit, carry out, evaluate and assess monitoring as described in the documentation specified in Table 2.10.1, or as otherwise agreed in writing by the Agency.

Table 2.10.1 : Monitoring

Description	Parts	Date Received
Application	The response to question 2.10 given in section B2.10 of the application	27/12/01
Response to Schedule 4 Part 1 Notice	Response to questions 89 – 92, 94 – 96, 98 - 113	2/9/02
Supplementary Information	Items 90, 92, 93, 97	5/11/02

2.10.2 Where requested in writing by the Agency, the Operator shall provide at least 14 days advance notice of undertaking monitoring / spot sampling.

2.10.3 There shall be provided:

a safe and permanent means of access, together with all other facilities necessary, to enable sampling / monitoring to be carried out in relation to the emission points specified in Schedule 2, unless otherwise specified in that Schedule; and

b safe means of access, together with all other facilities necessary, to enable sampling / monitoring to be carried out in relation to other sampling / monitoring points, when required by the Agency.

2.11 Decommissioning

2.11.1 The Operator shall, subject to the conditions of this Permit, make provision for decommissioning the installation as described in the documentation specified in Table 2.11.1, or as otherwise agreed in writing by the Agency.

Table 2.11.1 : Decommissioning

Description	Parts	Date Received
Application	The response to question 2.11 given in section B2.11 of the application	27/12/01

2.12 Multi-operator installations

2.12.1 This is not a multi-operator installation

3 Records

3.1.1 A record (a "Specified Record") shall be made of:-

a any malfunction, breakdown or failure of plant, equipment or techniques (including down time and any short term and long term remedial measures) that may have, has had or might have had an effect on the environmental performance of the Permitted Installation. These records shall be kept in a log maintained for that purpose;

b all monitoring and sampling taken or carried out in accordance with the conditions of this permit and any assessment or evaluation made on the basis of such data.

3.1.2 There shall be made available for inspection by the Agency at any reasonable time:

a Specified Records;

b any other records made by the Operator in relation to the operation of the Permitted Installation ("Other Records").

3.1.3 A copy of any Specified or Other Records shall be supplied to the Agency on demand and without charge.

3.1.4 Specified Records and Other Records shall:-

a be legible;

b be made as soon as reasonably practicable; and

c indicate any amendments which have been made and shall include the original record wherever possible.

3.1.5 Specified Records and Other Records shall be retained for a minimum period of 4 years from the date when the records were made.

3.1.6 For all waste received at or produced from the Permitted Installation, the Operator shall record (and shall retain such records for a minimum of 4 years)

a its composition or, as appropriate, description;

b the best estimate of the quantity produced;

c its disposal routes; and

d the best estimate of the quantity sent for recovery.

3.1.7 A record shall be made at the Permitted Installation of any complaints concerning the Installation's effect or alleged effect on the environment. The record shall give the date of complaint, time of complaint, a summary of any investigation and the results of such investigation. Such records shall be made in a log kept for this purpose.

4 Reporting

4.1.1 All reports and notifications required by this Permit, or by Regulation 16 of the PPC Regulations, shall be sent to the Environment Agency at the address notified in writing to the Operator by the Agency.

4.1.2 The Operator shall report the parameters listed in Table S2 to Schedule 2 as follows:

a in respects of the emission points specified;

b for the reporting periods specified in Table S2 to Schedule 2 and using the forms specified in Table S3 to Schedule 3;

c giving the information from such results and assessments as may be required by the forms specified in those Tables; and

d sending the report to the Agency within 28 days of the end of the reporting period.

4.1.3 The Operator shall, within 36 months of the issue of this Permit, submit a report on potential environmental improvements to the Permitted Installation. For each of the subject areas identified in Section 2 of the appropriate technical guidance, the report shall assess the costs and benefits of alternative techniques that may provide environmental improvement. This shall include, but not be limited to, those techniques listed in guidance. The methodologies used should be based on those given in Agency guidance note IPPC H1 (Environmental Assessment and Appraisal of BAT) and should justify, against the Best Available Techniques criteria, where potential improvements are not planned to be implemented. As part of their management system the Operator shall submit an updated report every 36 months.

4.1.4 Where the Operator has a formal environmental management system applying to the Permitted Installation which encompasses annual improvement targets the Operator shall, not later than 31 January in each year, starting in 2004, provide a summary report of the previous year's progress against such targets.

4.1.5 Fugitive emissions shall be reviewed on an annual basis and a summary report on each review shall be sent to the Agency detailing such releases and the measures taken to reduce them.

4.1.6 The Operator shall submit a detailed site closure plan to the Agency by 31 March 2004 and shall ensure that it remains current thereafter.

4.1.7 The Operator shall produce a report annually on the energy consumption of the installation, and shall send a copy of each such report to the Agency. The report shall contain, as a minimum, the information specified in the form listed in Schedule 3.

4.1.8 The Operator shall produce a report annually, summarising the quantities of waste removed from the site for recovery / disposal, and shall send a copy of each such report to the Agency. The report shall contain, as a minimum, the information specified in the form listed in Schedule 3.

5 Notifications

5.1.1 The Operator shall notify the Agency **without delay** of:-

a the detection of an emission of any substance which exceeds any limit or criteria in this Permit specified in relation to the substance;

b the detection of any fugitive emission which has caused or may cause pollution unless the quantity emitted is so trivial that it would be incapable of causing pollution;

c the detection of any malfunction, breakdown or failure of plant or techniques which has caused or may have the potential to cause pollution; and

d any accident which has caused or may have the potential to cause pollution.

5.1.2 The Operator shall submit written confirmation to the Agency of any notification under condition 5.1.1 of this Permit by sending:-

a the information listed in Part A of Schedule 1 to this Permit within 24 hours of such notification; and

b the more detailed information listed in Part B of that Schedule as soon as practicable thereafter;

and such information shall be in accordance with that Schedule.

5.1.3 The Operator shall give written notification, as soon as practicable, of any of the following:

a permanent cessation of the operation of any part of, or all of, the Permitted Installation;

b cessation of the operation of any part of, or all of, the Permitted Installation for a period likely to exceed 1 year; and

c resumption of the operation of any part of, or all of, the Permitted Installation after a cessation notified under 5.1.3(b).

5.1.4 The Operator shall notify the following matters to the Agency, in writing, within 14 days of their occurrence:

i any change in the Operator's trading name, registered name or registered office address;

ii a change to any particulars of the Operator's ultimate holding company (including details of an ultimate holding company where the Operator has become a subsidiary);

iii any steps taken with a view to the Operator going into administration, entering into a company voluntary arrangement or being wound up.

5.1.5 Where the Operator has entered into a Climate Change Levy Agreement with the Government, the Operator shall, within 14 days, notify the Agency, in writing, in the event that the Secretary of State has not re-certified that agreement.

5.1.6 Where the Operator has entered into the Emissions Trading Scheme by taking on a voluntary target with a financial incentive, the Operator shall, within 14 days, notify the Agency, in writing, of either:

(a) a decision by the Operator to withdraw from the scheme, or

(b) failure to comply with the emissions trading scheme at the end of the 5 year period covered by the scheme.

6 Emissions

6.1 Emissions into air

6.1.1 Emissions to air from the emission points specified in Table 6.1.1 shall only arise from the sources specified in that Table.

Table 6.1.1: Emission points into air

Emission point reference	Source	Location of emission point
31A1	Hot oil boiler N exhaust	As shown on drawing 52-1017-C, provided with **supplementary** response to Schedule 4 Question 54, received 2 September 2002.
31A2	Hot oil boiler S exhaust	
31A4	Pitch fume scrubber	
31A5	Nuisance dust collection systems in green carbon plant, including mixers during the addition of dry feed materials	
31A9	750 t pitch storage tank cartridge filter	Immediately on top of each tank.
31A10	1000 t pitch storage tank cartridge filter	
31A11	90 t pitch storage "day" tank cartridge filter	
33A1	Anode bake plant cyclones	As shown on drawing 52-1017-C, provided with **supplementary** response to Schedule 4 Question 54, received 2 September 2002.
33A5	Baked anode cleaning station	
34A2	Aluminium spray booth	Roof of rodding room
34A3	Aluminium spray furnace	
34A4	Cast iron induction furnace	As shown on drawing 52-1017-C, provided with **supplementary** response to Schedule 4 Question 54, received 2 September 2002.
34A6	Collector bar shot blast cleaner	
34A7	Cast iron tumbler mill cleaner and rod shot blast unit	
34A8	Secondary butts cleaning machine	
35A1	Primary butts crushing unit	
35A2	Secondary butts crushing unit	
41A5	Autogenous mill (bath crusher)	

Table 6.1.1: Emission points into air – continued

Emission point reference	Source	Location of emission point
41A21	Roof of potroom 1A	Eight vents spaced evenly along length of each pot room roof
41A22	Roof of potroom 1B	
41A23	Roof of potroom 2A	
41A24	Roof of potroom 2B	
41A26	Pot room West End dust collection	West end of pot room 2A
41A25	Cruce cleaning building	As shown on drawing 52-1017-C, provided with **supplementary** response to Schedule 4 Question 54, received 2 September 2002.
42A1	Fume treatment plant	
43A2	"D" Charger	
43A4	"A" Charger	
43A5	"A" Holding furnace	
43A7	"A" SNIF unit	
43A8	"B" Charger and holding furnace	
43A10	"B" SNIF unit	
43A11	"C" Charger	
43A12	"C" Holding furnace	
43A13	Homogenising furnace No N3	
43A14	Homogenising furnace No M3	
43A15	Homogenising furnace No M4	
43A19	Continuous homogenising unit	

6.1.2 The limits for emissions into air for the parameters and emission points set out in Tables 6.1.2 and 6.1.3 shall not be exceeded.

6.1.3 The Operator shall carry out monitoring of the parameters listed in Tables 6.1.2 and 6.1.3, from the emission points and at least at the frequencies specified in those Tables.

Table 6.1.2: Emission limits into air – Pot room roofs, Pot room West End and Fume treatment plant						
Parameters	**Emission Point**					
	41A21	41A22	41A23	41A24	41A26	42A1
Gaseous Fluorides (as HF), kg day^{-1}	Limits to be set when more data available				-	100
Continuous laser monitoring					-	
Gaseous Fluorides (as HF), kg week^{-1}	-	-	500	-	-	600
Frequency of monitoring	-	-	weekly Continuous samples	-	-	weekly Continuous samples
Total Fluorides (as F), kg week^{-1}	-	-	650	-	-	620
Frequency of monitoring	-	-	weekly Continuous samples	-	-	weekly Continuous samples
Total particulate matter, kg day^{-1}	-	-	150	-	10	100
Frequency of monitoring	-	-	Monthly Continuous samples	-	Annual Minimum 4-hour sample	Monthly Continuous samples
	41A21, 22, 23, 24 and 42A1 taken together – 12-month moving mean figures					
Gaseous Fluorides (as HF), kg/t aluminium (smelted)	0.8					
Total Fluorides (as F), kg/t aluminium (smelted)	1.0					
Total particulate matter, kg/t aluminium (smelted)	1.6					

Table 6.1.3: Emission limits into air – Green carbon and Carbon bake plant

Parameters	Emission Point 31A4	33A1	
		Until 31 December 2005	From 1 January 2006
Gaseous Fluorides (as HF), kg day^{-1} Continuous laser monitoring	-	300	Limit to be set when more data available
Total Fluorides (as F), kg week^{-1}	-	2000	50
Frequency of monitoring	-	continuous weekly samples (gaseous fluorides) weekly (particulate fluorides)	continuous laser monitoring (gaseous fluorides) weekly (particulate fluorides)
Total Particulate matter, mg m^{-3}	10	-	5
kg/day	-	900	-
Frequency of monitoring	quarterly (extractive) continuous alarmed monitor	weekly (extractive) continuous opacity meter	weekly (extractive) continuous opacity meter
Benzo-a-Pyrene, mg m^{-3}	0.1	1	0.1
Frequency of monitoring	6 monthly	6 monthly	6 monthly
Polycyclic aromatic hydrocarbons, PAH [EPA 16], in total, mg m^{-3}	-	5	3
Frequency of monitoring	6 monthly	6 monthly	6 monthly
		12-month moving mean figures	**12-month moving mean figures**
Total fluorides (as F), kg/t aluminium (smelted)	-	0.7	0.02
Total particulate matter, kg/t aluminium (smelted)	-	2	0.02

3.1.4 Where an annual mass limit for a substance is stated in Table 6.1.4, the aggregate emission of such substance from the Permitted Installation into air from the installation shall not exceed that limit in any period of twelve successive calendar months.

Table 6.1.4 Annual mass limits	
Substance	**Limit**
Sulphur dioxide, kg/t aluminium (smelted)	18
Polycyclic aromatic hydrocarbons (PAH [EPA-16]) in total, t	5 [Limit to apply from 1 January 2007]
Total Particulate Matter, kg/t aluminium (smelted)	4
Total Fluorides (as F) , kg/t aluminium (smelted)	1 [Limit to apply from 1 January 2007]

6.2 Emissions to land

6.2.1 There shall be no emission to land from the Permitted Installation

6.2.2 The Operator shall notify the Agency, as soon as practicable, of any information concerning the state of the Site which affects or updates that provided to the Agency as part of the Site Report submitted with the application for this Permit.

6.3 Emissions to water [other than emissions to sewer]

6.3.1 Emissions to water from the emission points specified in Table 6.3.1 shall only arise from the sources specified in that Table.

Table 6.3.1: Emission points into water		
Emission Point Reference	**Source**	**Receiving Water**
53W1	Trade effluent	Holyhead Bay
53W2	Sewage treatment plant effluent	Holyhead Bay
53W3	Site drainage	Holyhead Bay
53W4	Underground tunnel arisings	Holyhead Harbour alongside Salt Island

6.3.2 Limits for the emissions to water for the parameters and emission points set out in Table 6.3.2 shall not be exceeded.

6.3.3 The Operator shall carry out monitoring of the parameters listed in Table 6.3.2, from the emission points and at least at the frequencies specified in that Table.

Table 6.3.2: Emission limits into water

Parameters	Emission Point			
	53W1	53W2	53W3	53W4
Biochemical Oxygen Demand (*), mg/l	-	60	-	-
Frequency of monitoring	-	Weekly	-	-
Fluoride (as F), mg/l	15	-	20	-
Frequency of monitoring	Weekly	-	Weekly	-
Polycyclic Aromatic Hydrocarbons (PAH [EPA 16]) in total, mg/l	1	-	0.3	-
Frequency of monitoring	Monthly	-	Monthly	-
pH	-	-	-	-
Frequency of monitoring	Weekly	Weekly	Weekly	-
Suspended solids (#), mg/l	-	90	150	-
Frequency of monitoring	-	Weekly	Weekly	-
Total hydrocarbon oil, mg/l	15	-	15	-
Frequency of monitoring	Weekly	-	Weekly	-
Flow, l/s	1	3	-	-
Flow, m^3/day	86	120	-	-
Monitoring	Continuous	Continuous		

Notes to Table 6.3.2

\# After drying at 105°C.
* To be determined at 20°C after suppression of nitrification using allyl thiourea.

6.3.4 There shall be no emission into water from the Permitted Installation of any substance prescribed for water for which no limit is specified in Table 6.3.2 except in a concentration which is no greater than the background concentration.

6.4 Emissions to sewer

6.4.1 No emission shall be made into any sewer from the Permitted Installation.

6.5 Emissions of heat

6.5.1 There are no specific conditions in relation to emissions of heat.

6.6 Emissions of noise and vibration

6.6.1 There are no specific conditions in relation to emissions of noise and vibration.

7 Transfer to effluent treatment plant

7.1.1 The only on-site effluent treatment plant is the biological effluent treatment plant, which receives foul drainage only and discharges, after treatment, via release point 53W2.

8 Off site conditions

8.1.1 The Operator shall, when carrying out the Grass Monitoring, Ambient Air Fluoride Monitoring and Other Out-Plant Monitoring described in Section B2.10 of the Application, take all reasonably practicable measures to obtain the specified samples, actively seeking appropriate permission to sample wherever relevant.

8.1.2 Where circumstances beyond the control of the Operator prevent the undertaking of the programme as specified (such as lack of access to sampling locations or the lack of availability of samples), the Operator shall take all reasonably practicable steps to obtain appropriate alternatives.

9 Improvement programme

9.1.1 The Operator shall complete the requirements specified in Table 9.1.1 by the date specified in that Table, and shall send written notification of the date of completion of each requirement to the Agency, at the Reporting Address, within 14 days of the completion of each such requirement.

Table 9.1.1: Improvement programme requirements

Reference	Requirement	Date
9.1	The Operator shall provide proposals to the Agency, with a copy for the Local Authority, for carrying out a noise survey to identify the impact of noise from Anglesey Aluminium Metals Ltd. on noise-sensitive sites. Proposals shall take account of the Local Authority's measurements in April 2002.	30 June 2003
9.2	The Operator shall carry out analysis of a sample of typical arisings from the underground tunnel sump, bulked over a suitable period to include transport of raw materials through the tunnel. The sample shall be analysed for total suspended solids, BOD, COD and metals. Results shall be reported to the Agency, along with data indicating typical volumetric arisings.	31 July 2003
9.3	The Operator shall provide a report to the Agency, summarising findings from sampling water in drainage ditches in the area of what was formerly known as Hawkins Heap. The report is to include results for metals (total and dissolved) and other contaminants.	1 August 2003
9.4	The Operator shall prepare a schedule for regular visual inspection of releases from ALL the installation's release points to air (including from the pitch storage tank cartridge filters). The schedule is to include minimum check frequencies, recommended duration of observations, descriptions of suitable observation points (under typical lighting conditions) and an instruction to carry out the observations when plant likely to act as a source of releases is operating.	30 September 2003
9.5	The Operator shall set up a system so that every new cell has a written description (available for inspection) of its main design features (materials of construction, hood & door design, intended anode size, features to minimise corrosion / erosion & fugitives etc) that can affect its environmental performance.	1 October 2003
9.6	The Operator shall submit a report to the Agency which describes, for every numerical limit imposed by the conditions in Section 6 of this Permit, the system for drawing managerial attention when necessary to high or abnormal results of tests carried out to monitor compliance with that limit. The report shall include estimates of the time likely to elapse between obtaining high results and making the notification (if any) required by Permit Condition 5.1.1.	1 October 2003

Table 9.1.1: Improvement programme requirements – continued

Reference	Requirement	Date
9.7	The Operator shall submit a report to the Agency, detailing the criteria against which laser technology will be assessed before making a case for using this method to partially replace extractive sampling, for monitoring gaseous fluoride releases to air from release points 33A1, 41A23 and 42A1. The report should include details of steps taken to have the method recognised by the Comité Européen de Normalisation ("CEN").	31 October 2003
9.8	The operator shall submit a report to the Agency, reviewing the effectiveness of bag and cartridge 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.	31 October 2003
9.9	The Operator shall submit a report to the Agency, describing Standards used currently for monitoring fluoride releases to air from the installation using extractive sampling. The report shall also list the most up-to-date available standards according to the hierarchy in the Sector Guidance Note S2.03. Where these differ, the report shall include timescales for moving to the up-to-date standard.	1 November 2003
9.10	The Operator shall submit a report to the Agency, describing Standards used currently for monitoring releases to air from the installation, for Flow, Total particulate matter, carbon monoxide, PAH, Benzo-a-pyrene, temperature, oxides of nitrogen, and oxygen. The report shall also list the most up-to-date available standards according to the hierarchy in the Sector Guidance Note S2.03. Where these differ, the report shall include timescales for moving to the up-to-date standard.	1 November 2003
9.11	The Operator shall carry out and report to the Agency a programme of ambient air monitoring for concentrations of fluorides (in μgm^{-3}), to determine (1) the correlation between fluoride concentration and deposition rate (measured in μgcm^{-2}/week); and (2) the degree of agreement between measured fluoride concentrations and those predicted by dispersion modelling.	30 November 2003
9.12	The Operator shall carry out a review of procedures used to assess the fate of raw materials (including significant impurities) used in the installation and submit a summary report of the review to the Agency. If the review identifies aspects of raw material use where potential environmental impact is not addressed, the procedures shall be upgraded no later than March 2004.	30 November 2003
9.13	The Operator shall carry out a review of site raw materials, including examination of potential alternatives with lower environmental impact, and shall submit a report of the review to the Agency.	30 November 2003

Table 9.1.1: Improvement programme requirements – continued

Reference	Requirement	Date
9.14	The Operator shall obtain estimates, in kg/day, of releases of particulate matter and oxides of nitrogen from the cast iron induction furnaces. The estimates shall be reported to the Agency, along with results of either (a) observations of smoke emissions during furnace operation, or (b) readings from a suitable alarmed smoke monitor, permanently installed within the stack.	1 December 2003
9.15	The Operator shall submit a report to the Agency, describing Standards used currently for monitoring releases to water from the installation, for Flow, pH, Fluoride, BOD, Total hydrocarbon oil and Suspended solids. The report shall also list the most up-to-date available standards according to the hierarchy in the Sector Guidance Note S2.03. Where these differ, the report shall include timescales for moving to the up-to-date standard.	1 December 2003
9.16	The Operator shall carry out a programme of work to assess losses of raw materials to air, water and land, using a range of available techniques, including mass balance, and report findings to the Agency.	31 December 2003
9.17	The Operator shall carry out, and report to the Agency, a noise survey to the standards of BS4142: 1997. The survey is to be conducted by a competent person and only after proposals have been agreed with the Environment Agency, advised also by the Local Authority.	31 January 2004
9.18	The Operator shall assess potential improvements that could be made to the dross and spent pot-liner buildings and their immediate vicinity to reduce dust arisings and provide extra safeguards against contamination of groundwater. A report of the assessment shall be submitted to the Agency, including timetable for implementing those measures identified as BAT.	31 January 2004
9.19	The Operator shall inspect and review standards of containment and bunding of the above-ground storage tanks on site, and submit a report to the Agency, including plans for making improvements identified as BAT or required by regulations.	29 February 2004
9.20	The Operator shall adopt procedures for estimating releases of particulate matter and particulate fluoride from filtered release points when the filtration equipment malfunctions. A report shall be submitted to the Agency, describing how the quantities emitted during malfunctions are calculated (for inclusion in notifications referred to in conditions 5.1.1 and 5.1.2).	31 March 2004
9.21	The Operator shall carry out a review of techniques available worldwide for sealed anode butt cooling and submit a report to the Agency, including an appraisal of their effectiveness at minimising releases to the environment. If the report identifies improvements that represent BAT for the installation, it shall contain a timetable for implementing those improvements by **1 June 2005**.	31 March 2004
9.22	The Operator shall install a minimum of two continuous flow measurement devices suitable for providing improved estimates of volumetric releases from the roof of pot room 2A.	31 March 2004

Table 9.1.1: Improvement programme requirements – continued

Reference	Requirement	Date
9.23	The Operator shall provide a report reviewing recycling and disposal options for the installation's waste arisings listed in sections B2.5 and B2.6 of the application. Preferred options should be supported by reasoned justifications, and greater detail should be provided where alternative options are available or mentioned in the sector guidance note (examples to include spent pot-lining, cast iron slags, and aluminium-rich skimmings).	31 May 2004
9.24	The Operator shall provide a report to the Agency, giving the costs and benefits of installing a filtered extract system on the cast iron induction furnaces. Improvements identified as BAT shall be installed no later than 31 August 2005.	31 August 2004
9.25	The Operator shall calculate and report fluoride releases from the pot room roofs by a method that takes account of continuously-measured flows. A full description of the method shall be provided to the Agency by 31 March 2004.	1 September 2004
9.26	The Operator shall, using 2003 annual discharge data for release points which, between them, account for at least 90% of the total release from the installation, carry out dispersion modelling to determine maximum ground level concentrations of pollutants. The modelling shall be carried out for NOx, Particulate Matter, Fluorides (particulate and gaseous), PAHs and BaP, and the Results shall be reported to the Agency.	31 October 2004
9.27	The Operator shall carry out a programme of off-site environmental sampling for PAHs. The choice of monitoring sites and sampling duration should be discussed with the Agency and with the Local Authority in advance, and must be such as to enable reasonable conclusions to be drawn as to PAH levels in areas where the Operator's Plant Contribution is likely to be highest.	31 October 2004
9.28	The Operator shall review the provision of emergency power supplies for safety and environmentally critical plant, and provide a report of the findings to the Agency. The report shall include (i) a timetable for making improvements identified as BAT and (ii) sample calculations of how environmental releases are estimated during power outages.	31 October 2004
9.29	The Operator shall review the energy consumption and environmental releases from all furnaces and process heaters in the installation, and assess benefits and detriments of potentially changing fuel type, burner type, and off-gas handling. Consider energy use, mass releases of oxides of nitrogen and other factors as appropriate. Provide a report of the review to the Agency, including a forward plan for implementing any improvements identified as BAT.	31 October 2005
9.30	The Operator shall submit a report to the Agency detailing the scope for possible reductions in releases of oxides of nitrogen from the installation. If any of the techniques is identified as BAT, the report shall include a timetable for implementing the technique within a maximum of a further twelve months.	31 October 2005

10 Interpretation

10.1.1 In this Permit, the following expressions shall have the following meanings:

"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, powers specified in Section 108(4) of that Act.

"Background concentration"

means the same as "background quantity" as defined in paragraph 11 to Part 2 to Schedule1 of the PPC Regulations.

"Fugitive emission"

means an emission from any point other than those specified in the Tables in part 6 of this Permit.

"Monitoring"

includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, tests and surveys.

"Permitted Installation"

means the activities and the limits to those activities described in Table 1.1.1 of this Permit.

"Polycyclic Aromatic Hydrocarbons" or "PAHs"

PAH [EPA 16] means the following group of sixteen compounds, namely Naphthalene, Acenapthylene, Acenapthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Benzo(ghi)perylene, Indeno(123-cd)pyrene,and Dibenzo(ah)anthrecene.

PAH [Borneff 6] means the following group of six compounds, namely Fluoranthene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Benzo(ghi)perylene and Indeno(123-cd)pyrene.

"PPC Regulations"

means the Pollution Prevention and Control Regulations 2000 (S.I. 2000 No. 1973) and words and expressions defined in the PPC Regulations shall have the same meanings when used in this Permit.

"Staff"

includes employees, directors or other officers of the Operator, and any other person under the Operator's direct or indirect control, including contractors.

"Substances prescribed for water"

means those substances mentioned in paragraph 13 of Part 2 of Schedule 1 to the PPC Regulations.

"Year"

means calendar year ending 31 December.

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

10.1.3 Unless otherwise stated, any references in this Permit to concentrations of substances in emissions into air means;

a in relation to gases from combustion processes, the concentration in dry air at a temperature of 273 K, 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 gases from non-combustion sources, the concentration at a temperature of 273 K and at a pressure of 101.3 kPa, with no correction for water vapour content.

11 Written agreement to changes

11.1.1 When the qualification "or as otherwise agreed in writing" is used in a condition of this Permit, the Operator shall seek such agreement in the following manner:

a the Operator shall give the Agency written notice of the details of the proposed change, indicating the relevant part(s) of this Permit; and

b such notice shall include an assessment of the possible effects of the proposed change (including waste production) on risks to the environment from the Permitted Installation.

11.1.2 Any change, proposed according to condition 11.1.1 and agreed in writing by the Agency, shall not be implemented until the Operator has given the Agency prior written notice of the implementation date for the change. As from that date, the Operator shall operate the Permitted Installation in accordance with that change, and any relevant documentation referred to in this Permit shall be deemed to be amended.

Schedule 1

Confirmation of condition 5.1.1 notifications, in accordance with condition 5.1.2

This Schedule outlines the information that the Operator must provide to the Agency to satisfy condition 5.1.2 of this Permit.

Units of measurement used in information supplied under Part A and B requirements must 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 PPC Regulations.

Returns should contain:

Part A

☐ Name of Operator.

☐ Permit Number

☐ Location of Installation.

☐ Date information provided.

☐ Time, date and location of the emission.

☐ Identity and details of the substance[s] emitted to include:-

- ☐ Best estimate of the quantity or the rate of emission, and the time during which the emission took place.
- ☐ Environmental medium into which the emission took place.
- ☐ Measures taken, or intended to be taken, to stop the emission.

Part B

☐ Date and time of emission

☐ Any more accurate information on the matters notified 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 or harm which has been or may be caused by the emission.

☐ The dates of any Part A notifications within the previous 24 months.

☐ Name ☐ Post.....

☐ Signature ☐ Date

☐ Statement that signatory is authorised to sign on behalf of Anglesey Aluminium Metal Limited.

Schedule 2

Reporting of monitoring data

Parameters for which reports shall be made, in accordance with conditions 4.1.2 of this Permit, are listed below.

Table S2: Reporting of monitoring data

Parameter	Units	Emission point	Reporting period	Period begins
Gaseous fluoride by laser monitoring, as HF	kg/day and kg/week	41A21-41A24, 42A1, 33A1	Quarterly	1 July 2003
Gaseous fluoride by extractive monitoring, as HF	kg/day and kg/week	41A23 & 42A1	Quarterly	1 July 2003
Total fluoride by extractive monitoring, as F	kg/day and kg/week	41A23, 42A1 & 33A1	Quarterly	1 July 2003
Gaseous fluoride (as HF)	12-monthly rolling means, kg/t of Al smelted	41A21-24 & 42A1	Quarterly	1 July 2003
Particulate fluoride (as HF)	12-monthly rolling means, kg/t of Al smelted	41A21-24 & 42A1	Quarterly	1 July 2003
Total fluoride (as F)	12-monthly rolling means, kg/t of Al smelted	41A21-24, 42A1 & 33A1	Quarterly	1 July 2003
Sulphur dioxide	12-monthly rolling means, kg/t of Al smelted	41A21-24, 42A1 & 33A1	Quarterly	1 July 2003
Total particulate matter	Monthly mean kg/day	41A23, 42A1 & 33A1	Quarterly	1 July 2003
Total particulate matter	mg/m^3	41A26 & 31A4	Quarterly	1 July 2003
Total particulate matter	kg/quarter And 12-monthly rolling means, kg/t of Al smelted	41A21-24, 41A26, 42A1, 31A4, 33A1, and all other release points in total	Quarterly	1 July 2003
Particulate Fluoride	kg/quarter	All release points in total, other than 41A21-24, 41A26, 42A1, 31A4, and 33A1.	Quarterly	1 July 2003
Total PAH [EPA 16] and Benzo-a-Pyrene	mg/m^3	31A4 and 33A1	Quarterly	1 July 2003

Table S2: Reporting of monitoring data – continued

Parameter	Units	Emission point	Reporting period	Period begins
Total particulate matter	kg	All to air	Annual	1 July 2003
Total particulate fluoride (as F)	kg	All to air	Annual	1 July 2003
Total oxides of nitrogen as NO_2	kg	All to air	Annual	1 July 2003
Carbon monoxide	kg	All to air	Annual	1 July 2003
Gaseous fluoride (as HF)	kg	All to air	Annual	1 July 2003
Total fluoride as F	kg	All to air	Annual	1 July 2003
Total fluorocarbons	kg	All to air	Annual	1 July 2003
Total PAH [EPA 16]	kg	All to air	Annual	1 July 2003
Total PAH [Borneff 6]	kg	All to air	Annual	1 July 2003
Benzo-a-pyrene	kg	All to air	Annual	1 July 2003
Carbon dioxide	t	All to air	Annual	1 July 2003
Total oxides of sulphur as SO_2	t	All to air	Annual	1 July 2003
Flow	l/s	53W1 - 53W3	Quarterly	1 July 2003
Flow	m^3/day	53W1 - 53W3	Quarterly	1 July 2003
Fluoride	mg/l	53W1 - 53W3	Quarterly	1 July 2003
Total PAH [EPA 16]	mg/l	53W1 - 53W3	Quarterly	1 July 2003
Suspended solids	mg/l	53W1 - 53W3	Quarterly	1 July 2003
pH	-	53W1 - 53W3	Quarterly	1 July 2003
pH minimum	-	53W1 - 53W3	Quarterly	1 July 2003
Total hydrocarbon oil	mg/l	53W1 - 53W3	Quarterly	1 July 2003
Biochemical oxygen demand	mg/l	53W1 - 53W3	Quarterly	1 July 2003
Total fluoride (as F)	kg	All to water	Annual	1 July 2003
Total PAH [EPA 16]	kg	All to water	Annual	1 July 2003
Total PAH [Borneff 6]	kg	All to water	Annual	1 July 2003
Fluoride deposition / ambient air concentration	μgcm^{-2}/week $\mu g/m^3$	At sites as detailed in application	Every 6 months	1 July 2003
Fluoride in herbage	mg/kg		Every 6 mths	1 July 2003

Schedule 3

Forms to be used

Unless otherwise agreed in writing between Agency and the Operator, the following Agency forms are to be used for reports submitted to Agency.

Table S3:Reporting Forms

Medium / parameter	Form Number	Date of Form
Air	A1, A2, A3	30/5/03
Water	W1, W2	30/5/03
Energy	E1	30/5/03
Waste Return	R1	30/5/03
Out-plant Monitoring Return	M1	30/5/03

END OF PERMIT