Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Envirowales Limited

Rassau Recycling Facility
Plateaux 1 & 2
Rassau Industrial Estate
Ebbw Vale
Blaenau Gwent
NP23 5SD

Permit number

EPR/EP3230BW

Rassau Recycling Facility
Permit number EPR/EP3230BW

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows.

The purpose of the process is to recover lead and other commercially-valuable components from lead-containing materials. Raw materials containing lead include lead-acid batteries, and lead scrap from the battery manufacturing industry and other sources, lead dross from external sources and dross generated internally, and lead-bearing dusts and sludges generated by the process. The final products from the process include lead ingot and slabs. The process is estimated to have a gross throughput of 85,000 tonnes per annum (70,000 tonnes from lead-acid batteries and 15,000 tonnes from scrap lead materials), producing circa 56,000 tonnes of lead.

The sub-processes within the installations are:

(i) Raw materials delivery and storage
(ii) Battery breaking
(iii) Paste de-sulphurisation
(iv) Furnace charge preparation
(v) Smelting
(vi) Scrap melting
(vii) Refining
(viii) Ingot casting
(ix) Slab casting
(x) Liquid effluent treatment

In addition, improvement conditions allow for the future construction and operation of the following:

(i) An automated lead casting machine
(ii) A plastics washing and granulating plant with a capacity of 21,000 tonnes per annum
(iii) A slag handling facility with a capacity of 8,000 tonnes per annum
(iv) A materials handling and storage facility with a capacity of 70,000 tonnes per annum
(v) A new lead melting operation and associated emission point

A transport marshalling facility, wheel wash and decontamination facility are planned to be installed.

Raw Materials Delivery and Storage

Batteries are received on site in 1 tonne polypropylene bins and 25 tonne bulk tippers and are stored in a bunded, undercover area with an acid resistant floor which drains into the acid recovery area. Drosses are delivered in steel drums and skips and pastes and oxides are delivered in steel drums and polypropylene bins,

and stored in an undercover area. Lead-bearing sludge from the effluent treatment plant and dusts collected in the abatement system are stored before being re-processed in the smelting furnaces.

Other furnace reagents, such as sodium carbonate, coke and iron are stored in dedicated bays adjacent to the smelting furnace area. Sodium carbonate is delivered via tanker and stored in silos.

Battery Breaking

Batteries are transferred from the battery storage area to pre-breaking to remove the majority of sulphuric acid electrolyte, before being conveyed into hammer-type mills to be crushed. The crushed material passes through a series of screens, wet 'float/sink' classifiers and filters to obtain separate fractions containing metallic components, lead oxide, sulphate paste, polypropylene, non-recyclable plastics and rubber and dilute sulphuric acid. A screw conveyor transfers the metallic materials into the storage areas prior to furnace charging. The other components are fed onto a screen mesh belt where the suspended paste and some residual fine metallic lead materials are settled out and removed by screw conveyor to a filter press before being stored adjacent to the smelting area.

Any liquid generated by this process is transferred to the effluent treatment plant via the floor drains.

Polypropylene us separated from other plastic or Bakelite compounds before being transferred to store via screw conveyor. PVC separators from the batteries are washed before being sent to landfill.

The battery breaking plant and building is subject to local exhaust ventilation that vents to air via a wet scrubber at Stack A1 at a height of 15m. The liquor arising from this scrubber is treated at the effluent treatment plant.

Paste de-sulphurisation

Battery paste is dewatered through a filter press before storage. Paste is then de-sulphurised using sodium carbonate and the drained acid collected during pre-crushing and battery breaking, before being stored ready for smelting. The resultant sodium sulphate from the process is then sold.

Furnace Charge Preparation

Furnace charges will be collected from the respective storage bays within the main building. The charge will consist of lead bearing materials and various reagents and will be transported to and charged into the furnace by a front-loading charge crane incorporating a semi-circular rotating scoop, fed by conveyor.

The scoop rotates within the furnace to deposit the charge therein. The charging area at the mouth of the furnace will be kept under negative pressure throughout the charge to minimise dust emissions. The local exhaust ventilation system for the area vents to a bag filter abatement system, which discharges via Stack A2 at a height of 30m. Emissions from A2 are decreased as a result of the use of BAT whereby battery paste is desulphurised prior to smelting.

Smelting

There are two rotary furnace on site of capacity 5m^3 nominal capacity each, which are designated F1 and F2. The furnace is batch charged with the front loading charger and rotating scoop, fed by conveyor. The furnace area is kept under negative pressure throughout the charging and operational cycle, with hot gases vented through an extraction hood to a bag filter abatement system. Gases are directed through a drop-out chamber where larger dust particles are collected and where the flue gases are cooled with hygiene air to less than 120°C before being filtered via reverse pulse jet bag filter plant. A bag filter serves the furnace and then vents to air via Stack A2 at a height of 30m. Particulate material in the bag filter is recycled in the process.

Lead bullion, slag and dross are tapped from the furnace. Dross is separated from the slag and stored before re-processing. Slag is transported to the storage area via a slag bin carried by forklift truck, whilst lead bullion is transferred to the refining kettles in molten or solid form in bullion vessels of 2 to 3 tonnes nominal capacity. Slag is stored in a dedicated storage bay and any dust within the area is collected by a local exhaust ventilation system which is vented to a bag filter abatement plant and then to atmosphere via Stack A4 at a height of 25m. Slag is periodically removed from the storage area for transportation to permanent storage or recovery

Scrap Melting

Lead scrap is held in a dedicated storage bay adjacent to the scrap melting kettle area within the refinery. Clean, dry scrap is transferred by charging skips and is melted in a 75 tonne capacity kettle designated SK1. The scrap melting kettle is fired by low-NO_x, natural gas burners which are operated at lower temperatures to preclude lead fume generation, however, the kettle is served by the reverse pulse jet bag filter abatement plant in order to capture any particulate emissions, or fume generated during casting. The bag filter vents to air via Stack A3 at a height of 30m. Combustion gases are vented to air via Stack C1 (A5) at a height of 15m. The melted scrap lead will be pumped in molten form, or transferred in solid form to the refining kettles when specific metallurgical properties are required by the end user.

Refining

The refinery is equipped with six natural gas-fired kettles, all of 120 tonnes capacity (K1, K2, K3, K4, K5 and K6), one of which (K1) is dedicated to scrap melting, for the purposes of bullion treatment and adjustment into final specification products. The combustion gases from the kettles' low-NO_x burners are vented to air via Stacks A5 at a height of 15m.

Unrefined lead bullion from the furnaces is charged into the kettles in molten or pre-cast form, via overhead crane through an opening in the ventilation hood above each kettle unit. The kettle heats the charge to its melting temperature of 300 - 320°C before the refining operation begins. Reagents are added in order to carry out specific refining operations. Copper is removed at 330 - 350°C whilst Tin and Antimony are removed at 450 - 480°C. Each kettle's local exhaust ventilation system vents to the reverse pulse jet bag filter abatement system and Stack A3 at

a height of 30m. Particulates collected by the bag filters are recycled through the process. Dross is removed manually / mechanically into drums and is then stored and recycled into the process in the case antimonial and copper drosses, or sold on for the recovery of valuable metals.

Casting

Once the lead has been refined to the appropriate specification, a pump is inserted into the kettle and the metals cast into ingots of 25kg or 45kg or slabs of up to 10 tonnes, as well as blocks of various sizes according to customer requirements. The casting shop area is served by the reverse pulse jet bag filters and HEPA filter system that vents via Stack A3. Finished products are stored before removal off-site for sale.

Liquid Effluent Treatment

Liquors generated from the process are transferred via contained drainage systems to the effluent treatment plant. Acidic effluent from the battery breaking area can be treated within the effluent treatment plant, although the primary use for electrolyte drained from the batteries is as a raw material in the paste de-sulphurisation process. Acidic liquors from the battery breaking plant are filtered to remove large solids before a three stage fine filtration process and finally ultra-filtration. The effluent is then transferred to the effluent treatment plant for neutralisation or stored awaiting use in the paste de-sulphurisation process. Water collected via roof drains is transferred for storage within a 1250m^3 concrete tank and is re-used as process water supply. Contaminated water from the process, wheel wash and floor wash-down activities are all transferred to the effluent treatment plant where large solids are screened out and stored for disposal. The effluent then goes for treatment with sodium hydroxide and a flocculent. Solids generated are screened and pressed into dry filter cake whilst the liquid effluent undergoes ultra-fine filtration before being re-routed back into the process for re-use.

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

Status log of the permit		
Description	**Date**	**Comments**
Application EP3230BW	Duly Made 13/10/04	
Response to request for information	Requests dated 21/12/04, 03/03/05	Responses dated 17/01/05, 15/03/05
Request to extend determination	Requests dated 22/02/05, 23/03/05, 06/04/05	Requests accepted 23/02/05, 24/03/05, 06/04/05
Permit determined	26/04/05	
Application for variation EPR/EP3439LB	Duly Made 16/01/06	

Status log of the permit		
Description	**Date**	**Comments**
Variation notice issued EP3439LB	28/04/08	
Variation Application DP3534UB	Duly Made 12/06/07	
Application withdrawn by operator	16/08/08	
Agency initiated variation EPR/EP3230BW/V004 (PAS ref. GP3938GX)	Requested 21/08/08	
Response from operator	25/11/08	Response with comments dated 25/11/08
Variation notice issued EPR/EP3230BW/V004	09/01/09	
Agency Initiated Variation EPR/3230BW/V005 (PAS ref. WP3037TE)	Requested 05/07/10	
Variation notice issued EPR/EP3230BW/V005	09/07/10	
Application EPR/EP3230BW/V006	Duly made 09/10/13	Application to vary and update the permit to modern conditions
Variation determined EPR/EP3230BW/V006	15/04/14	Varied and consolidated permit issued in modern condition format
Regulation 60(1) Notice of request for information	27/07/16	
Regulation 60(1) response received	19/10/16	Implementation of BAT conclusions under IED
Natural Resources Wales Non-Ferrous Metals Sector Review 2016 Permit EPR/EP3230BW Variation issued EPR/EP3230BW/V007	02/11/17	Varied and consolidated permit issued in modern IED condition format.

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number
EPR/EP3230BW

The Natural Resources Body for Wales ("Natural Resources Wales") authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

EnviroWales Limited ("the operator"),

whose registered office is

Faulkner House
Victoria Street
St. Albans
Hertfordshire
AL1 3SE

company registration number **04296277**

to operate an installation at

Rassau Recycling Facility
Plateaux 1 & 2
Rassau Industrial Estate
Ebbw Vale
Blaenau Gwent
NP23 5SD

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

Signed	Date
Stephen Attwood	**02/11/2017**

Authorised on behalf of Natural Resources Wales

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformance, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

1.2.1 The operator shall:

(a) take appropriate measures to ensure that energy is used efficiently in the activities;

(b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

1.3.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 (a) The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by Natural Resources Wales.

(b) If notified by Natural Resources Wales that the activities are giving rise to pollution, the operator shall submit to Natural Resources Wales for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

2.3.2 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.

2.3.3 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.2; and

(b) it conforms to the description in the documentation supplied by the producer and holder.

2.3.4 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste;

(a) The nature of the process producing the waste;

(b) The composition of the waste;

(c) The handling requirements of the waste;

(d) The hazardous property associated with the waste, if applicable; and

(e) The waste code of the waste.

2.3.5 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.3.6 Treatment of waste batteries and accumulators must meet the minimum requirements set out in Annex III, Part A of Directive 2006/66/EC of the European Parliament and of the Council on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC.

2.3.7 Hazardous waste shall not be mixed, either with a different category of hazardous waste or with other waste, substances or materials, unless it is authorised by schedule 1 table S1.1 and appropriate measures are taken.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by Natural Resources Wales.

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

2.5 Pre-operational conditions

2.5.1 The operations specified in schedule 1 table S1.4B shall not commence until the measures specified in that table have been completed.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2, S3.3 and S3.4.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

(a) if notified by Natural Resources Wales that the activities are giving rise to pollution, submit to Natural Resources Wales for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Monitoring

3.3.1 The operator shall, unless otherwise agreed in writing by Natural Resources Wales, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) point source emissions specified in tables S3.1, S3.2 and S3.3;

(b) ambient air monitoring specified in table S3.4.

3.3.2 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.

3.3.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.3.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by Natural Resources Wales.

3.3.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.2 and S3.3 unless otherwise agreed in writing by Natural Resources Wales.

3.4 Odour

3.4.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.4.2 The operator shall:

(a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to odour, submit to Natural Resources Wales for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3.5 Noise and vibration

3.5.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.5.2 The operator shall:

(a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to noise and vibration, submit to Natural Resources Wales for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by Natural Resources Wales, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by Natural Resources Wales.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to Natural Resources Wales using the contact details supplied in writing by Natural Resources Wales.

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31 January (or other date agreed in writing by Natural Resources Wales) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the annual production/treatment data set out in schedule 4 table S4.2; and

(c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by Natural Resources Wales, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to Natural Resources Wales, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.2.5 Within 1 month of the end of each quarter, the operator shall submit to Natural Resources Wales using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter, if during that quarter the total amount accepted exceeds 100 tonnes of non-hazardous waste or 10 tonnes of hazardous waste.

4.3 Notifications

4.3.1 (a) In the event that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—

(i) inform Natural Resources Wales,

(ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and

(iii) take the measures necessary to prevent further possible incidents or accidents;

(b) in the event of a breach of any permit condition the operator must immediately—

(i) inform Natural Resources Wales, and

(ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;

(c) in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where Natural Resources Wales has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform Natural Resources Wales when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to Natural Resources Wales at least 14 days before the date the monitoring is to be undertaken.

4.3.4 Natural Resources Wales shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) Natural Resources Wales shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.3.6 Natural Resources Wales shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.3.7 Where the operator has entered into a climate change agreement with the Government, Natural Resources Wales shall be notified within one month of:

(a) a decision by the Secretary of State not to re-certify the agreement;

(b) a decision by either the operator or the Secretary of State to terminate the agreement; and

(c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made “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 and WFD Annex I and II operations**	**Limits of specified activity and waste types**
A1 - A2	S2.2 A(1) (a): Unless falling within Part A(2) of this Section, producing non-ferrous metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic activities.	Two rotary furnaces for the smelting lead-bearing components of batteries	Feed of materials and fuels for smelting in two rotary furnaces through to discharge from the process stacks
A3 – A8	S2.2 A(1) (b): Melting, including making alloys of, non-ferrous metals, including recovered products and the operation of non-ferrous metal foundries where— (i) the plant has a melting capacity of more than 4 tonnes per day for lead or cadmium or 20 tonnes per day for all other metals.	One scrap melting kettle (K1) and five 120te refining kettles (K2-K6) for the melting and refining lead scrap and refining lead bullion.	Operation of melting and refining activities to produce lead ingots and slab within five 120te refining kettles (K2-K6). Operation of in-line casting machine and associated abatement equipment and discharge from the process stacks.
A9 - A10	S2.2 A(1) (b): Melting, including making alloys of, non-ferrous metals, including recovered products and the operation of non-ferrous metal foundries where— (i) any furnace (other than a vacuum furnace), bath or other holding vessel used in the plant for the melting has a design holding capacity of 5 or more tonnes	Two 25te refining kettles for the melting and refining lead scrap and refining lead bullion.	Operation of melting and refining activities at DM building to produce lead ingots and slab within two 25te refining kettles. Operation of specialist hand casting, anode burning, extrusion press, associated abatement equipment and discharge from the process stack A6.

Directly Associated Activity		
A11	Receipt of raw materials from suppliers or recovery of raw materials from battery breaking. Preparation and storage of raw materials or process feedstock.	Recovery of raw materials from the battery breaker or receipt on site. Subsequent processing and feeding materials only for the installation smelting, melting or refining processes.
A12	Storage and handling of associated solid and liquid wastes and other lead bearing wastes.	Activities from separation of wastes to despatch or releases from installation.
A13	Treatment and discharge of process or surface water and site drainage from the installation.	All effluent treatment and any interceptors to point of entry to controlled waters.
A14	Treatment and discharge of foul water from the installation.	All effluent treatment to point of entry to foul sewer.
A15	Plastics washing and granulation plant	Recovery of plastic wastes generated from the battery breaking process

Directly Associated Activity		
A16	Materials handling facility	Storage of raw materials prior to melting and refining activities
A17	Slag handling facility	Treatment of furnace slag generated from the on-site smelting process
A18	Lead rolling mill and cutting lines	Operation of three cold rolling mills and three cutting lines to customer specification

Table S1.2 Operating techniques

Description	Parts	Date Received
Application	The response to questions 2.1 and 2.2 given in pages/section EW-B2.1 to EW-B2.2.11 of the application Best available techniques as described in BAT conclusions under Directive 2010/75/EU of the European Parliament and of the Council on the Non-Ferrous Metals Industries.	12/09/04
Response to Schedule 4 Part 1 Notice	Response to questions contained therein.	17/01/05
Response to Schedule 4 Part 1 Notice	Response to questions contained therein.	15/03/15
Additional information	All parts contained within faxes received 16/03/05 regarding rotary furnace slag leachate analysis (Biffa Waste Service and Engitec Ltd. correspondence therein refers).	16/03/05
Application	Part C3 technical standards EP3230BW_VAR_2013_Sect.2 of variation application EPR/EP3230BW/V006	09/10/13
Response to Schedule 5 Notice	A6 stack discharge parameters Capacities of plastic recycling plant, materials handling and waste storage area, and the slag handling facility.	17/02/14
Additional Information	E-mail referenced ‘Storage confirmation 040414’ providing details of the storage of batteries to site.	04/04/14
Responses to pre operational measures 1-5	Plans submitted and approved by NRW in response to the pre operational measures 1-5.	On receipt of agreed plans.
Information received in support of Natural Resources Wales’s Non-Ferrous Metals Industries Review 2016	All parts of operator response to Regulation 60(1) notice	19/10/16

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1	The Operator shall update the following plans on commencement of each of the pre operational measures listed in Table S1.4B. 1. Environment Management System 2. Odour Management Plan 3. Accident Management Plan 4. Noise Management Plan 5. Emissions Management Plan	Within 3 months of receipt of agreed plans
IC2	The operator shall submit, for approval by Natural Resources Wales, a report setting out progress towards achieving compliance with BAT Conclusions and BAT-AELs where BAT is currently not achieved, but will be achieved by the 30th June 2020. The report shall include, but not be limited to, the following: 1) Current performance against the BAT Conclusions and BAT-AEL. 2) Methodology for reaching the AELs. 3) Associated targets / timelines for reaching compliance by 30th June 2020. The report shall address all of the relevant BAT Conclusion 16.	Once a year commencing on 02/11/2018 until 30/06/2020

Table S1.4B Pre-operational measures for future development		
Reference	**Operation**	**Pre-operational measures**
PO1	Lead melting operations at the Direct Milling building	The Operator shall submit a written commissioning plan based on the final design to NRW, along with timescales for implementation. The plan shall be designed to demonstrate that permit conditions will be met under all anticipated operating conditions and shall confirm the commissioning programme and plant monitoring protocols. The plan shall be implemented in accordance with NRW's written approval and commissioning shall not commence until that approval is provided.
PO2	Plastics washing and granulation plant for heavy plastics	The Operator shall submit a plan based on the final design to NRW, along with timescales for implementation. The plan shall demonstrate that permit conditions will be met under all anticipated operating conditions and shall confirm the commissioning programme and plant monitoring protocols. The plan shall be implemented in accordance with NRW's written approval and commissioning shall not commence until that approval is provided.
PO3	Materials handling facility	The Operator shall submit a plan based on the final design to NRW, along with timescales for implementation. The plan shall demonstrate that permit conditions will be met under all anticipated operating conditions and shall confirm the commissioning programme and plant monitoring protocols. The plan shall be implemented in accordance with NRW's written approval and commissioning shall not commence until that approval is provided.

Table S1.4B Pre-operational measures for future development		
Reference	**Operation**	**Pre-operational measures**
PO4	Slag handling facility	The Operator shall submit a plan based on the final design to NRW, along with timescales for implementation. The plan shall demonstrate that permit conditions will be met under all anticipated operating conditions and shall confirm the commissioning programme and plant monitoring protocols. The plan shall be implemented in accordance with NRW's written approval and commissioning shall not commence until that approval is provided.
PO5	AQ assessment A6 including based on final design	Prior to the operations of the Direct Milling Mill the Operator shall submit an air quality assessment based on the final design to NRW to assess the impact from A6 and its associated emissions to air. The plan shall be submitted for NRW's written approval and operations shall not commence until that approval is provided. The assessment shall also consider the existing stack emission points taking into consideration monitoring data collected

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
Mercury concentration in caustic used at installation	0.5 ppm maximum

Table S2.2 Permitted waste types and quantities for lead recovery operation	
Waste code	**Description**
10	**WASTE FROM THERMAL PROCESSES**
10 04	Wastes from lead thermal metallurgy
10 04 01*	Slags from primary and secondary production
10 04 02*	Dross and skimmings from primary and secondary production
10 04 04*	Flue-gas dust
10 04 05*	Other particulates and dust
10 04 06*	Solid waste from gas treatment
10 04 07*	Sludges and filter cakes from gas treatment
10 04 99	Wastes not otherwise specified
11	**WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY**
11 02	Wastes from non-ferrous hydrometallurgical processes
11 02 03	Wastes from the production of anodes for aqueous electrolytical processes
11 02 05*	Wastes from copper hydrometallurgical processes containing hazardous substances
11 02 06	Wastes from copper hydrometallurgical processes other than those mentioned in 11 05 05
11 02 07*	Other wastes containing dangerous substances
12	**WASTES FROM SHAPING AND PHYSICAL AND MECHANINCAL SURFACE TREATMENT OF METALS AND PLASTICS**
12 01	Wastes from shaping and physical and mechanical surface treatment of metals and plastics
12 01 03	Non-ferrous metal filings and turnings
12 01 04	Non-ferrous metal dust and particles
16	**WASTES NOT OTHERWISE SPECIFIED IN THE LIST**
16 06	Batteries and accumulators
16 06 01*	Lead batteries
16 06 02*	Ni-Cd batteries
16 06 03*	Mercury-containing batteries
16 06 04	Alkaline batteries (except 16 06 03)
16 06 05	Other batteries and accumulators
16 06 06*	Separately collected electrolyte from batteries and accumulators
19	**WASTES FROM WASTE MANAGAMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARTION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUTRIAL USE**
19 10	Wastes from shredding of metal-containing wastes
19 10 02	Non-ferrous waste
19 12	Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 03	Non-ferrous metal

Table S2.2 Permitted waste types and quantities for lead recovery operation	
Waste code	**Description**
19 12 04	Plastic and rubber
19 12 11*	Other wastes (including mixtures of materials) from mechanical treatment of waste containing dangerous substances
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	Separately collected fractions (except 15 01)
20 01 33*	Batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries
20 01 34	Batteries and accumulators other than those mentioned in 20 01 33

Schedule 3a – Emissions and monitoring – Emissions until 29th June 2020

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1 [Point A1 on site plan in Schedule 7]	Wet scrubber abatement serving Battery Breaking	Sulphuric acid mist	1 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	US EPA Method 8
		Dust	5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 13284-1
		Arsenic, Cadmium, Mercury, Thallium and Selenium and their compounds expressed as As, Cd, Hg, Tl and Se	0.5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Antimony, Copper, Lead, Nickel, Tellurium, Tin and Zinc and their compounds expressed as Sb, Cu, Pb, Ni, Te, Sn and Zn	2 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
A2 [Point A2 on site plan in schedule 7]	Bag filter abatement plant serving Rotary Furnaces RF1 and RF2]	Dust	5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 13284-1
		Dust	5 mg/m^3	Monthly average	Continuous	BS EN 13284-1 and EN 14181
		Dust	10 mg/m^3	Daily average	Continuous	BS EN 13284-1 and EN 14181
		Sulphur dioxide	500 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14791
		Sulphur dioxide	500 mg/m^3	Monthly average	Continuous	BS EN 14181
		Sulphur dioxide	500 mg/m^3	Daily average	Continuous	BS EN 14181

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A2 [Point A2 on site plan in schedule 7] (cont.)	A2 [Point A2 on site plan in schedule 7] (cont.)	Hydrogen chloride	10 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 1911
		Arsenic, Cadmium, Mercury, Thallium and Selenium and their compounds expressed as As, Cd, Hg, Tl and Se	0.5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Antimony, Copper, Lead, Nickel, Tellurium, Tin and Zinc and their compounds expressed as Sb, Cu, Pb, Ni, Te, Sn and Zn	2 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Dioxins and furans (ITEQ)	0.1 ng/m^3	Periodic over minimum 6 hours, maximum 8 hour period	6 monthly	BS EN 1948 Parts 1, 2 and 3
		Oxides of nitrogen	100 mg/m^3	Periodic over minimum 6 hours, maximum 8 hour period	6 monthly	BS EN 14792
		Oxides of nitrogen	100 mg/m^3	Monthly average	Continuous	BS EN 14181
		Oxides of nitrogen	200 mg/m^3	Daily average	Continuous	BS EN 14181
		Carbon monoxide	1000 mg/m^3	Periodic over minimum 6 hours, maximum 8 hour period	6 monthly	BS EN 15058
		Carbon monoxide	1000 mg/m^3	Monthly average	Continuous	BS EN 15267-3 and EN 14181
		Volatile organic compounds (as Carbon)	50 mg/m^3	Periodic over minimum 6 hours, maximum 8 hour period	6 monthly	BS EN 12619
		Volatile organic compounds (as Carbon)	50 mg/m^3	Monthly average	Continuous	BS EN 12619
		Volatile organic compounds (as Carbon)	100 mg/m^3	Daily average	Continuous	BS EN 12619

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A3 [Point A3 on site plan in schedule 7]	Bag filter abatement plant serving Refining Kettles K2-K6 and Scrap Melting Kettle K1	Dust	5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 13284-1
		Dust	5 mg/m^3	Monthly average	Continuous	BS EN 13284-1 and EN 14181
		Dust	10 mg/m^3	Daily average	Continuous	BS EN 13284-1 and EN 14181
		Sulphur dioxide	500 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14791
		Hydrogen chloride	10 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 1911
		Arsenic, Cadmium, Mercury, Thallium and Selenium and their compounds expressed as As, Cd, Hg, Tl and Se	0.5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Antimony, Copper, Lead, Nickel, Tellurium, Tin and Zinc and their compounds expressed as Sb, Cu, Pb, Ni, Te, Sn and Zn	2 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Dioxins and furans (ITEQ)	0.1 ng/m^3	Periodic over minimum 6 hours, maximum 8 hour period	6 monthly	BS EN 1948 Parts 1, 2 and 3
		Oxides of nitrogen	100 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 15267
		Carbon monoxide	150 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 15058

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Volatile organic compounds (as Carbon)	50 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 12619
A4 [Point A4 on site plan in schedule 7]	Bag filter abatement plant serving Slag Treatment and storage area	Dust	5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 13284-1
		Dust	5 mg/m^3	Monthly average	Continuous	BS EN 13284-1 and EN 14181
		Dust	10 mg/m^3	Daily average	Continuous	BS EN 13284-1 and EN 14181
		Arsenic, Cadmium, Mercury, Thallium and Selenium and their compounds expressed as As, Cd, Hg, Tl and Se	0.5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Antimony, Copper, Lead, Nickel, Tellurium, Tin and Zinc and their compounds expressed as Sb, Cu, Pb, Ni, Te, Sn and Zn	2 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
A5 [Point A5 on site plan in schedule 7]	Oxy-gas burners stack for Scrap Melting Kettle K1 and Refining Kettles K2, K3, K4, K5 and K6	Sulphur dioxide	50 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14791
		Oxides of nitrogen	100 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 15267
		Carbon monoxide	150 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 15058

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A5 [Point A5 on site plan in schedule 7] (cont.)	Oxy-gas burners stack for Scrap Melting Kettle K1 and Refining Kettles K2, K3, K4, K5 and K6 (cont.)	Volatile organic compounds (as Carbon)	50 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 12619
A6 [Point A5 site plan in schedule 7]	Lead melting operations	Lead and its compounds expressed as Pb	2 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Dust	5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 13284-1
		Sulphur dioxide	500 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14791
		Oxides of nitrogen	100 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 15267
A7 [Point A6 on site plan in schedule 7]	Sodium sulphate silo	Dust	No visible emission	N/A	N/A	N/A
A8 [Point A7 on site plan in schedule 7]	Sodium sulphate silo	Dust	No visible emission	N/A	N/A	N/A

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
W1 to Cwm Nant Melyn [Point W1 on site plan in schedule 7]	Site surface water drainage from around process buildings and car parks via interceptor and storage tanks	Lead	No limit set	Spot sample	Weekly	BS 6068-2.29
		pH	No limit set	Spot sample	Weekly	BS ISO 10523
		Suspended solids	No limit set	Spot sample	Weekly	BS EN 872
		Hydrocarbon oils	No limit set	Spot sample	Weekly	SCA Blue Book 77 ISBN 0117517283
		Sulphate	No limit set	Spot sample	Weekly	SCA Blue Book 136 ISBN 0117522406

Table S3.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. Unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
S1 to sewer [Point S1 on site plan in schedule 7]	Site effluent treatment plant taking process waters from site process operations. Also foul domestic sewage from amenity areas.	Biological oxygen demand	10 mg/l	Spot sample	Weekly	BS EN 1899-1
		Arsenic and its compounds expressed as As	2.5 mg/l	Spot sample	Weekly	BS EN ISO 17294-2

Table S3.4 Ambient air monitoring requirements				
Location or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Ambient air monitor located at Garnlydan School at 316600, 212400	Particulate matter	Continuous	EN12341:2014	Methodology as agreed with Natural Resources Wales
	Lead	Continuous	EN12341:2014	Methodology as agreed with Natural Resources Wales

Schedule 3b – Emissions and monitoring – Emissions from 30th June 2020

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in Schedule 7]	Wet scrubber abatement serving Battery Breaking	Sulphuric acid mist	1 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	US EPA Method 8
		Dust	5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 13284-1
		Arsenic, Cadmium, Mercury, Thallium and Selenium and their compounds expressed as As, Cd, Hg, Tl and Se	0.5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Antimony, Copper, Lead, Nickel, Tellurium, Tin and Zinc and their compounds expressed as Sb, Cu, Pb, Ni, Te, Sn and Zn	2 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
A2 [Point A2 on site plan in schedule 7]	Bag filter abatement plant serving Rotary Furnaces RF1 and RF2	Dust	4 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 13284-1
		Dust	5 mg/m^3	Daily average	Continuous	BS EN 13284-1 and EN 14181

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A2 [Point A2 on site plan in schedule 7] (cont.)	Bag filter abatement plant serving Rotary Furnaces RF1 and RF2 (cont.)	Dust	10 mg/m^3	Monthly average	Continuous	BS EN 13284-1 and EN 14181
		Sulphur dioxide	350 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14791
		Sulphur dioxide	500 mg/m^3	Monthly average	Continuous	BS EN 14181
		Sulphur dioxide	500 mg/m^3	Daily average	Continuous	BS EN 14181
		Hydrogen chloride	10 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 1911
		Mercury and its compounds expressed as Hg	0.05 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Lead and its compounds expressed as Pb	1 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Arsenic, Cadmium, Thallium and Selenium and their compounds expressed as As, Cd, Tl and Se	0.5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Antimony, Copper, Nickel, Tellurium, Tin and Zinc and their compounds expressed as Sb, Cu, Ni, Te, Sn and Zn	2 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Dioxins and furans (ITEQ)	0.1 ng/m^3	Periodic over minimum 6 hours, maximum 8 hour period	6 monthly	BS EN 1948 Parts 1, 2 and 3
		Oxides of nitrogen	100 mg/m^3	Monthly average	Continuous	BS EN 14181

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A2 [Point A2 on site plan in schedule 7] (cont.)	Bag filter abatement plant serving Rotary Furnaces RF1 and RF2 (cont.)	Oxides of nitrogen	200 mg/m^3	Daily average	Continuous	BS EN 14181
		Carbon monoxide	1000 mg/m^3	Monthly average	Continuous	BS EN 15267-3 and EN 14181
		Volatile organic compounds (as Carbon)	40 mg/m^3	Periodic over minimum 6 hours, maximum 8 hour period	6 monthly	BS EN 12619
		Volatile organic compounds (as Carbon)	50 mg/m^3	Monthly average	Continuous	BS EN 12619
		Volatile organic compounds (as Carbon)	100 mg/m^3	Daily average	Continuous	BS EN 12619
A3 [Point A3 on site plan in schedule 7]	Bag filter abatement plant serving Refining Kettles K2-K6 and Scrap Melting Kettle K1	Dust	4 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 13284-1
		Dust	5 mg/m^3	Monthly average	Continuous	BS EN 13284-1 and EN 14181
		Dust	10 mg/m^3	Daily average	Continuous	BS EN 13284-1 and EN 14181
		Sulphur dioxide	500 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14791
		Hydrogen chloride	10 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 1911
		Arsenic, Cadmium, Mercury, Thallium and Selenium and their compounds expressed as As, Cd, Hg, Tl and Se	0.5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A3 [Point A3 on site plan in schedule 7] (cont.)	Bag filter abatement plant serving Refining Kettles K2-K6 and Scrap Melting Kettle K1 (cont.)	Antimony, Copper, Lead, Nickel, Tellurium, Tin and Zinc and their compounds expressed as Sb, Cu, Pb, Ni, Te, Sn and Zn	2 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Dioxins and furans (ITEQ)	0.1 ng/m^3	Periodic over minimum 6 hours, maximum 8 hour period	6 monthly	BS EN 1948 Parts 1, 2 and 3
		Oxides of nitrogen	100 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 15267
		Carbon monoxide	1000 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 15058
		Volatile organic compounds (as Carbon)	40 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 12619
A4 [Point A4 on site plan in schedule 7]	Bag filter abatement plant serving Slag Treatment and storage area	Dust	4 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 13284-1
		Dust	5 mg/m^3	Monthly average	Continuous	BS EN 13284-1 and EN 14181
		Dust	10 mg/m^3	Daily average	Continuous	BS EN 13284-1 and EN 14181

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A4 [Point A4 on site plan in schedule 7] (cont.)	Bag filter abatement plant serving Slag Treatment and storage area (cont.)	Arsenic, Cadmium, Mercury, Thallium and Selenium and their compounds expressed as As, Cd, Hg, Tl and Se	0.5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Antimony, Copper, Lead, Nickel, Tellurium, Tin and Zinc and their compounds expressed as Sb, Cu, Pb, Ni, Te, Sn and Zn	2 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
A5 [Point A5 on site plan in schedule 7]	Oxy-gas burners stack for Scrap Melting Kettle K1 and Refining Kettles K1, K2, K3, K4, K5 and K6	Sulphur dioxide	50 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14791
		Oxides of nitrogen	100 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 15267
		Carbon monoxide	150 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 15058
		Volatile organic compounds (as Carbon)	50 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 12619
A6 [Point A5 site plan in schedule 7]	Lead melting operations	Lead and its compounds expressed as Pb	2 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14385
		Dust	5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 13284-1
		Sulphur dioxide	500 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 14791
		Oxides of nitrogen	100 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BS EN 15267
A7 [Point A6 on site plan in schedule 7]	Sodium sulphate silo	Dust	No visible emission	-	-	-

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A8 [Point A7 on site plan in schedule 7]	Sodium sulphate silo	Dust	No visible emission	-	-	-

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
W1 [Point W1 on site plan in schedule 7]	Site surface water drainage from around process buildings and car parks via interceptor and storage tanks	Lead	No limit set	Spot sample	Weekly	BS 6068-2.29
		pH	No limit set	Spot sample	Weekly	BS ISO 10523
		Suspended solids	No limit set	Spot sample	Weekly	BS EN 872
		Hydrocarbon oils	No limit set	Spot sample	Weekly	SCA Blue Book 77 ISBN 0117517283
		Sulphate	No limit set	Spot sample	Weekly	SCA Blue Book 136 ISBN 0117522406

Table S3.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. Unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
S1 [Point S1 on site plan in schedule 7]	Site effluent treatment plant taking process waters from site process operations. Also foul domestic sewage from amenity areas.	Biological oxygen demand	10 mg/l	Spot sample	Weekly	BS EN 1899-1
		Arsenic and its compounds expressed as As	2.5 mg/l	Spot sample	Weekly	BS EN ISO 17294-2

Table S3.4 Ambient air monitoring requirements				
Location or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Ambient air monitor located at Garnlydan School at 316600, 212400	Particulate matter	Continuous	EN12341:2014	Methodology as agreed with Natural Resources Wales
	Lead	Continuous	EN12341:2014	Methodology as agreed with Natural Resources Wales

Schedule 4 - Reporting

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

Table S4.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.3.1.	A1, A2, A3, A4, A5, A6, A7 and A8	Every 12 months	1 January
Emissions to water Parameters as required by condition 3.3.1	W1	Every 12 months	1 January
Emissions to sewer Parameters as required by condition 3.3.1	S1	Every 12 months	1 January
Ambient air monitoring Parameters as required by condition 3.3.1	Ambient air monitor located at Garnlydan School at 316600, 212400	Every 12 months	1 January

Table S4.2 Annual production/treatment

Parameter	Units
Total amount of raw material received on site	tonnes
Amount of raw material sent for smelting	tonnes
Screened material sent of off-site disposal	tonnes

Table S4.3 Performance parameters

Parameter	Frequency of assessment	Units
Water usage	Annually	tonnes
Energy usage	Annually	MWh
Total raw material used	Annually	tonnes
Battery raw material used	Annually	tonnes

Table S4.4 Reporting forms

Media/parameter	Reporting format	Date of form
Air	Form air 1 or other form as agreed in writing by Natural Resources Wales	02/11/17
Water and Land	Form water 1 or other form as agreed in writing by Natural Resources Wales	15/04/14
Sewer	Form sewer 1 or other form as agreed in writing by Natural Resources Wales	02/11/17
Water usage	Form water usage 1 or other form as agreed in writing by Natural Resources Wales	15/04/14
Energy usage	Form energy 1 or other form as agreed in writing by Natural Resources Wales	15/04/14
Other performance indicators	Form performance 1 or other form as agreed in writing by Natural Resources Wales	15/04/14

Schedule 5 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

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

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

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

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

(c) In the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment:	
To be notified within 24 hours	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B - to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 - Interpretation

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

"authorised officer" means any person authorised by Natural Resources Wales under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

"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.

"disposal" means any of the operations provided for in Annex IIA to Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on Waste.

"emissions to land" includes emissions to groundwater.

"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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

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

"hazardous property" has the meaning in Annex lll of the Waste Framework Directive

"hazardous property" has the meaning given in Schedule 3 of the Hazardous Waste (England and Wales) Regulations 2005 No.894 and the Hazardous Waste (Wales) Regulations 2005 No. 1806 (W.138).

"Industrial Emissions Directive" means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions

"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.

"recovery" means any of the operations provided for in Annex IIB to Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on Waste.

"Solvent Emissions Directive" means Directive 1999/13/EC (as amended by Directive 2004/42/EC) on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations.

"waste code" means the six digit code referable to a type of waste in accordance with the list of wastes established by Commission Decision 2000/532/EC as amended from time to time (the 'List of Wastes Decision') and in relation to hazardous waste, includes the asterisk.

"WFD" means Waste Framework Directive Directive 2008/98/EC of the European Parliament and of the Council on waste

"year" means calendar year ending 31 December.

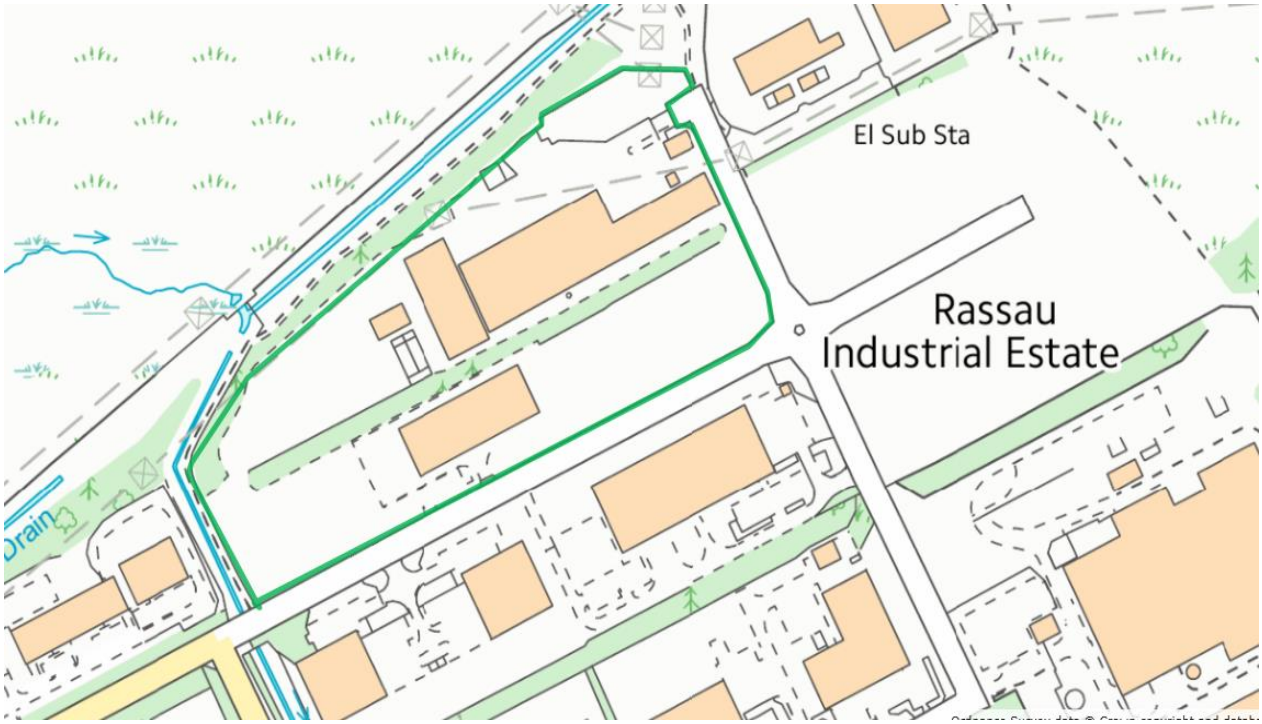
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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

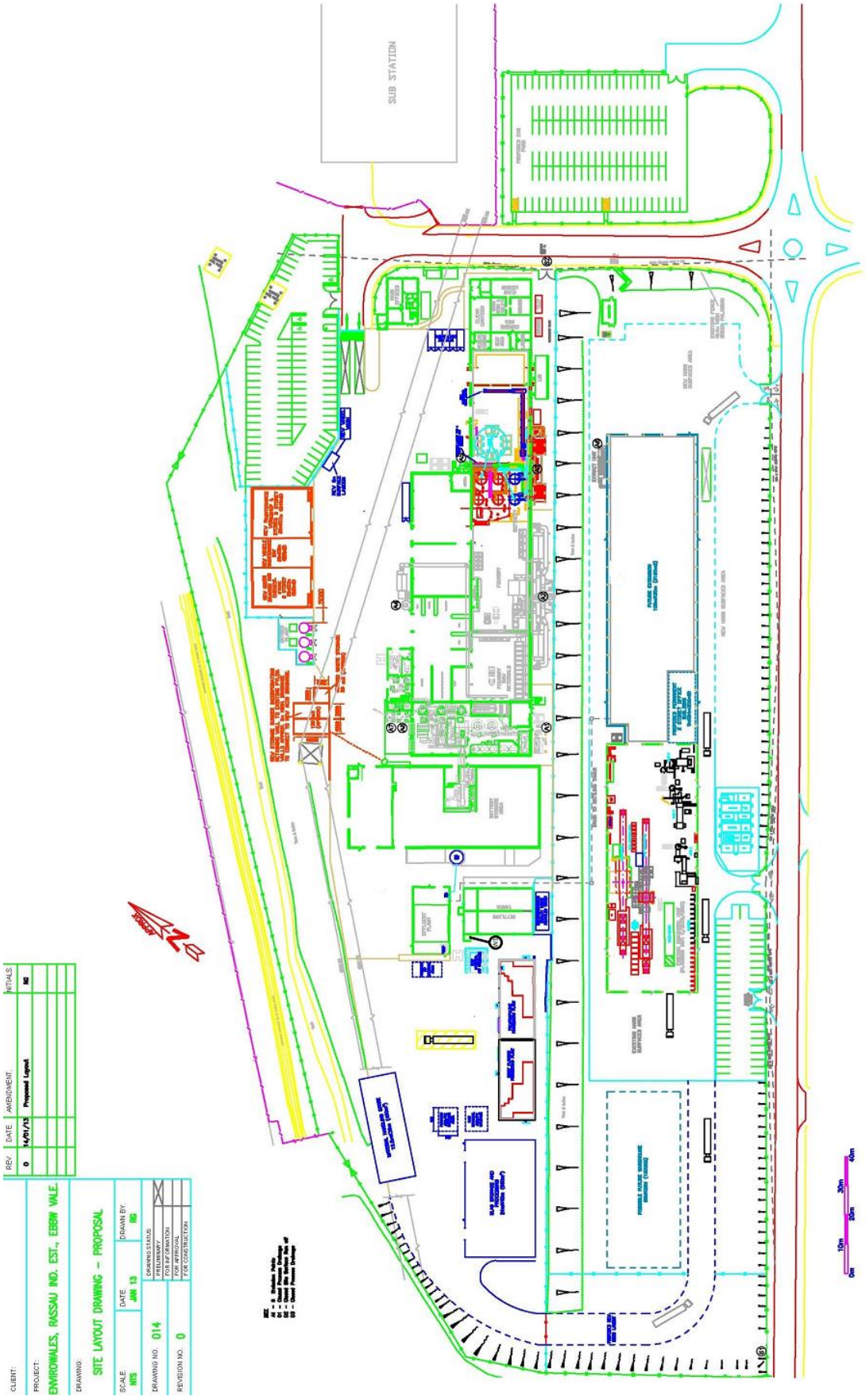
in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or

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

Schedule 7 - Site plan



SITE LAYOUT PLAN



END OF PERMIT