

Notice of variation and consolidation with introductory note

Environmental Permitting (England & Wales) Regulations 2010

Anglesey Renewable Energy Plant

Anglesey Aluminium Metal
Renewables Limited
Penrhos Works
PO Box 4
Holyhead
Anglesey
LL65 2UJ

Variation notice number
EPR/ZP3337KE/V002

Permit number
EPR/ZP3337KE

Anglesey Renewable Energy Plant

Permit number EPR/ZP3337KE

Introductory note

This introductory note does not form a part of the permit

The following notice, which is issued pursuant to regulations 18 and 20 and Part 1 of Schedule 5 of the Environmental Permitting (England and Wales) Regulations 2010, S.I.2010 No. 675 (the Regulations), gives notice of the variation of an environmental permit to operate a regulated facility and the replacement of that permit with a consolidated environmental permit.

The variation will permit the combustion of virgin biomass wood. The activity is listed under Schedule 1, section 1.1 Part A (1)(a); *burning any fuel in an appliance with a thermal input of 50 megawatts or more*, of the Environmental Permitting (England and Wales) Regulations 2010.

Anglesey Renewable Energy Plant (REP) is located on land within the existing site boundary (Grid Reference: SH26570 81350) The installation is to be operated by Anglesey Aluminium Metals Renewables Limited (AAMR).

The installation comprises of a 299MWe power station. The combustion unit uses circulating fluidised bed (CFB) technology. The REP will be fuelled primarily by biomass wood, in the form of wood chip or pellets pre-dominantly imported from North America and Europe. The biomass wood is delivered to the site by ship into Holyhead Jetty. The installation includes a series of hoppers and conveyors that transport the biomass wood from the deep water jetty to the wood storage buildings on the REP site. The unloading operation and conveyors are deemed to be under the operational control of Anglesey Aluminium Metal Renewables Limited and are included within this Permit.

The biomass wood is transferred onto conveyor systems within the wood storage buildings and fed into the combustion unit via boiler feed silos located within the boiler house.

Steam produced by the combustion unit is used to power a steam turbine which in turn generates electricity that can be fed into the National Grid.

The installation includes a small oil fuelled auxiliary boiler (3MWth) to generate steam to enable rapid start up of the steam turbine.

After passing through the steam turbine, the steam is cooled by air cooling technology.

The installation also includes a small diesel powered emergency stand-by generator (1MWe) to provide electricity for essential systems in the event of mains power supply interruption.

The installation is subject to the Large Combustion Plant Directive and will generate emissions to air from the combustion process, emissions to water, such as cooling water and waste in the form of bottom ash and fly ash.

There are a number of designated habitats, Beddmanarch-Cymyran (Site of Special Scientific Interest), The Glannau Ynys Gybi, The Ynys Feurig, Cemlyn Bay and The Skerries (Special Protection Area) and Llyn Dinam (Special Area of Conservation) located within 15km of the installation.

All of the conditions of the permit have been varied other than those indicated in Schedule 1. Schedule 2 contains a copy of the varied and consolidated environmental permit, including any site plan.

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

Status Log of the permit		
Detail	Date	Response Date
Application BL1100	Received 27/12/01	
Response to Schedule 4 Part 1 Notice	Notice dated 15/04/02	Response received 24/06/02
Supplementary Information	Received 02/09/02	Amended earlier schedule 4 part 1 Notice Responses
Response to schedule 4 Part 1 Notice	Notice dated 03/05/02	Response received 02/09/02
Supplementary Information	Received 05/11/02	Amended earlier Schedule 4 Part 1 Notice Responses
Permit BL1100	Determined 30/05/03	-
Application for variation	Received 25/04/05	-
Variation JP3532SB	Determined 29/06/05	-
Variation Application (DP3532KF) Duly Made	15/12/09	-
Variation Notice EPR/BL1100IX/V003 issued	18/12/09	-
Partial Transfer Application EPR/ZP3337KE/T001 for transfer of part of permit EPR/BL1100IX	Duly Made 18/02/10	-
Partial Transfer of permit issued to Anglesey Aluminium Metal Ltd EPR/BL1100IX/T004	08/03/10	-
Partial Transfer of permit issued to new operator Anglesey Aluminium Metal Renewables Limited EPR/ZP3337KE/T001	08/03/10	-
Application for substantial variation (EPR/ZP3337KE/V002)	Duly Made 05/03/10	-
Request for further information	Request date 03/08/10	Response received 03/09/10
Variation EPR ZP3337KE determined	09/03/11	

End of Introductory note

Notice of variation and consolidation

Environmental Permitting
(England and Wales) Regulations 2010

Permit number

EPR/ZP3337KE

Variation notice number

EPR/ZP3337KE/V002

Operator

Anglesey Aluminium Metals Renewables Limited

whose registered office is

2 Eastbourne Terrace

London

W2 6LG

Company registration number **6983862**

Regulated facility

Anglesey Renewables Energy Plant

Penrhos Works

PO Box 4

Holyhead

Anglesey

LL65 2UJ

The Environment Agency in exercise of its powers under Regulations 18 and 20 and Part 1 of Schedule 5 of the Environmental Permitting (England and Wales) Regulations 2010 (SI 2010 No 675) varies the environmental permit as set out below and replaces it with a consolidated environmental permit and all the conditions of that permit other than those indicated in Schedule 1 are varied and the permit is replaced with a consolidated permit in the form set out in Schedule 2.

The notice shall take effect from 09 March 2011

Name	Date
Thomas Ruffell	09 March 2011

Authorised on behalf of the Environment Agency

Schedule 1

The following conditions were varied on the application of the operator:

- all other conditions were replaced with new template conditions

Schedule 2 – varied and consolidated permit

See attached.

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

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

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

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

1.2 Energy efficiency

1.2.1 For the following activities referenced in schedule 1, table S1.1. 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.

1.3.2 All biomass wood fuel at the site shall be stored within designated storage buildings.

1.3.3 No biomass wood shall be stored for longer than twenty one days before use, unless written approval is received from the Agency.

1.3.4 Biomass wood shall be stored in stockpiles not exceeding 15 metres in height.

1.3.5 Biomass wood fuel shall only be sourced from sustainable managed forests approved under established forest certification schemes.

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

1.4.1 The operator shall:

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

1.4.2 The operator shall ensure that all bottom ash and fly ash waste movement within the site is made within totally enclosed systems.

1.4.3 The operator shall ensure that all bottom ash and fly ash storage on site occurs within sealed bulk holding vessels.

1.4.4 The operator shall ensure that all bottom ash and fly ash waste is loaded for movement off-site within an enclosed system.

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 the Environment Agency.

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

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 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.
- 2.3.4 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.
- 2.3.5 The following conditions apply where there is a malfunction or breakdown of any abatement equipment:
- 2.3.5.1 The Operator shall notify the Environment Agency within 48 hours of any such malfunction or breakdown unless notification has already been made under condition 4.3.1.
- 2.3.5.2 Unless otherwise agreed in writing by the Environment Agency:
- (a) if a return to normal operations is not achieved within 24 hours, the operator shall reduce or close down operations, or shall operate the activities using low polluting fuels; and
 - (b) the cumulative duration of unabated operation in any 12-month period shall not exceed 120 hours.

2.4 Improvement programme

- 2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.
- 2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

- 2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4A 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 and S3.3.

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

3.1 Emissions of substances not controlled by emission limits

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

3.2.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan;
- (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

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

3.3 Odour

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

3.3.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan;
- (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

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

3.4.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan;
- (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

- (a) point source emissions specified in tables S3.1, S3.2 and S3.3;
- (b) surface water or groundwater specified in table S3.5;
- (c) noise specified in table S3.6;

3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.

3.5.4 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 to S3.6 unless otherwise agreed in writing by the Environment Agency.

3.6 Monitoring for the purposes of the Large Combustion Plant Directive

3.6.1 All LCP monitoring required by this permit shall be carried out in accordance with the provisions of Annex VIII of the Large Combustion Plant Directive.

3.6.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in schedule 3, the Operator shall:

- (a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to the Environment Agency for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and
- (b) implement the approved measures.

3.6.3 Continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.

- 3.6.4 Unless otherwise agreed in writing by the Environment Agency in accordance with condition 3.6.5 below, the operator shall carry out the methods, including the reference measurement methods, to use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.
- 3.6.5 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with the Environment Agency.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment the operator shall submit a report to the Environment Agency in writing, within 28 days of the completion of the check.

3.7 Air Quality Management

- 3.7.1 The emissions from the activities shall not contribute significantly to any exceedance of EU air quality limit values or objectives of the Air Quality Strategy for England, Scotland, Wales and Northern Ireland for [oxides of nitrogen, nitrogen dioxide, sulphur dioxide, particulate matter and carbon monoxide].

4 Information

4.1 Records

- 4.1.1 All records required to be made by this permit shall:
- (a) be legible;
 - (b) be made as soon as reasonably practicable;
 - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
 - (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of the land and groundwater.
- 4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

- 4.2.2 From the start of operations at the site a report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:
- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
 - (b) the 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.
 - (d) Where condition 3.5.5 applies the hours of operation in any year shall be reported to the Environment Agency by 31 January in the following year.
 - (e) details of any contamination or decontamination of the site which has occurred

- 4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:
- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
 - (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; 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 the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.3 Notifications

- 4.3.1 The Environment Agency shall be notified without delay following the detection of:
- (a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;
 - (b) the breach of a limit specified in the permit; or
 - (c) any significant adverse environmental effects.

- 4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Prior written notification shall be given to the Environment Agency of the following events and in the specified timescales:
- (a) as soon as practicable prior to the planned commencement of commissioning of each combustion plant;
 - (b) as soon as practicable prior to the permanent cessation of any of the activities;
 - (c) as soon as practicable prior to the cessation of operation of part or all of the activities for a period likely to exceed 1 year; and
 - (d) as soon as practicable prior to the resumption of the operation of part or all of the activities after a cessation notified under (c) above.
- 4.3.4 The Operator shall notify the Environment Agency in writing within 14 days of the date when fuel is first burned in any of the large combustion plant.
- 4.3.5 The Operator shall notify the Environment Agency in writing within 14 days of the dates when commissioning each large combustion plant is complete.
- 4.3.6 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.
- 4.3.7 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
- Where the operator is a registered company:
- (a) any change in the operator's trading name, registered name or registered office address; and
 - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.
- 4.3.8 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) the Environment Agency shall be notified at least 14 days before making the change; and
 - (b) the notification shall contain a description of the proposed change in operation.
- 4.3.9 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.
- 4.3.10 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:
- (a) a decision by the Secretary of State not to re-certify the agreement;
 - (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
 - (c) any subsequent decision by the Secretary of State to re-certify such an agreement.

- 4.3.8 The operator shall inform the Environment Agency in writing of the closure of any LCP within 28 days of the date of closure.

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 listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
Section 1.1 A(1) (a) : Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	The production of steam used to generate electricity.	The entire combustion plant including air supply system, boiler, power plant (including CFB boiler, auxiliary boilers and emergency back-up generators), facilities for the treatment of exhaust gases, stacks, devices and systems for controlling combustion conditions. Auxiliary boilers from loading of gas oil to boiler to export of steam to the CFB system for up to 12 hours during plant start-up.
Directly Associated Activity		
Section 5.4 A(1) (b): Cleaning or regenerating ion exchange resins by removing matter which includes any substance listed in paragraphs 6 to 8 of part 1 – Water demineralisation plant.	Demineralisation of water supply to boiler for steam production.	From receipt of water from mains supply to discharge of water to CFB and auxiliary boiler plant.
Fuel unloading and transfer	Movement of biomass wood from jetty to hopper and transfer to storage area	Loading biomass wood from ships and the movement of wood chip by a series of conveyors and hoppers to wood storage building on site.
Fuel storage and movement	Storage of wood chip and loading to CFB Boiler	Storage of biomass wood within dedicated buildings, loading of biomass wood on to conveyor and transfer by conveyor to CFB boiler.
Gas oil storage and handling	Storage of gas oil within dedicated bulk storage tank	Off-loading of gas oil from road tanker to dedicated storage tank and transfer by pipe to auxiliary boilers.
Storage and movement of ash	Storage of ash with designated areas	Transfer of ash from CFB boiler to discharge into road container for transport off-site.
Fire protection and detection	Detection and pumping	Operation of pressurised fire fighting ring and sprinkler system. Regular testing of firewater system and for pumping firewater in the event of an emergency.
Steam turbines	Steam turbines for generation of up to 299Mw electrical output.	Operation of steam turbines by steam from CFB boiler and/or auxiliary boilers to produce electricity which is fed into National Grid.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	The response to section 2.1, excluding 2.1.3 and 2.1.5, and 2.2 in the Application.	05/03/10
Schedule 5 Notice Request dated 03/08/10	Response to questions 1-5 detailing abstraction and discharge of cooling water, specification of fuels and waste management.	03/09/10
Receipt of additional information to the application	Responses to additional questions raised during determination held as part of case file.	-

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IP01	<p>The Operator shall submit a report to the Agency providing an assessment of potential users of steam within the vicinity of the site. The assessment shall be in line with the requirements of</p> <ul style="list-style-type: none"> a) Section 2.7.3, Annex 1 and Annex 3 of the Environment Agency's Horizontal Guidance note IPPC H2 – Energy Efficiency. b) The Environment Agency's Horizontal Guidance note H1 – Annex (k) – Justifying and cost-benefit analysis of control measures. c) Article 6 of the Large Combustion Plant Directive. <p>The operator in carrying out the assessment shall also make reference to, as a minimum:</p> <ul style="list-style-type: none"> (d) National heat maps published by DECC, (e) Sections 2.4 and 2.7 of the European BAT reference note for Large Combustion Plants 2006. <p>Where such users are identified the Operator shall assess the feasibility of supplying the potential user with steam by conversion of the combustion unit at the site to a Combined Heat and Power plant. Where applicable, the report shall include a time-tabled plan to implement such improvements. The report shall also include a commitment for regular structured investigations of potential users of Combined Heat and Power in the vicinity of the site.</p>	18 months after start of operations.
IP02	<p>The Operator shall submit a report to the Agency detailing an assessment of the operational conversion efficiency of the power station. Where the calculated operational percentage conversion efficiency is lower than 37% the Operator shall assess how the conversion efficiency can be improved. Where applicable, the report shall include a time-tabled plan to implement such improvements.</p>	12 months after start of operations.

Table S1.3 Improvement programme requirements - continued		
Reference	Requirement	Date
IP03	The Operator shall submit a report to the Agency detailing the metals content of the emissions to air through A1 Stack. The metals tested should include but not be limited to cadmium, mercury, chromium, arsenic, vanadium, copper, zinc, nickel and lead. The analysis shall be carried out during the combustion of wood from distinct geographical areas and be representative of the full range of wood received as a fuel at the site. The report should also include a plan for on-going analysis of metals content of emissions from this point source.	6 months after start of operations.
IP04	The Operator shall submit a report to the Agency detailing the metals and dioxin content of fly ash and bottom ash. The ash shall be sampled at least 20 times over a period of at least 6 months. The range of metals analysed shall include, but not be limited to, copper, zinc, arsenic, lead, cadmium, chromium, mercury, nickel and vanadium. The report shall indicate the geographical source and the nature of the wood that was burnt during the formation of the ash. The analysis shall be carried out during the combustion of woods from distinct geographical area and be representative of the full range of wood received as fuel at the site. The report shall also include a plan for on-going analysis of the ash streams at the site. As a minimum this plan shall include metal analysis of ash for all wood sourced from distinct geographical areas other than those assessed during the initial sampling period.	6 months after start of operation.
IP05	The Operator shall carry out a noise monitoring survey at the installation to quantify the noise impact during operation against information supplied in the application. The measurement methodology and monitoring locations shall be agreed in writing with the Environment Agency. The results of the survey shall be provided to the Agency.	3 months after start of operation.
IP06	The Operator shall submit a report to the Agency analysing the dioxin content of the emissions to air through A1 stack. The analysis shall be carried out during the combustion of wood from distinct geographical areas and be representative of the full range of wood received as fuel at the site. The report should also include a plan for on going analysis of dioxins if the source of biomass wood changes.	3 months after start of operation.

Table S1.4A Pre-operational measures	
Reference	Pre-operational measures
POC 01	Environmental Management – The Operator shall develop and implement an Environmental Management System (EMS) and make this available for inspection from the Environment Agency. The Operator shall confirm that the EMS is subject to independent third party assessment and where appropriate submit a schedule by which the EMS will be subject to third party registration. <i>At least 3 months prior to start of operations.</i>
POC 02	Accident Management Plan - The Operator shall submit written details of the Accident Management Plan for approval to the Agency. Operations at the site shall not commence until the Accident Management Plan is approved in writing by the Environment Agency. <i>1 month prior to the installation commissioning date.</i>
POC 03	Energy Efficiency Plan – The Operator shall submit a written Energy Efficiency Plan for approval by the Environment Agency. Operations at the site shall not commence until the plan is approved in writing by the Environment Agency. <i>1 month prior to the start of the installation commissioning date.</i>
POC 04	Waste Management Plan – The Operator shall submit details of how waste produced at the site will be minimised and how any waste will be reused, recycled and/or disposed. The plan shall include storage arrangements and an assessment of whether the proposed routes represent the Best Environmental Option for each waste. Where improvements are identified the Operator shall propose a schedule to implement these improvements. Operations shall not commence until waste management proposals have been approved in writing by the Agency. <i>1 month prior to the start of the installation commissioning date.</i>
POC 05	As built site plan – The operator shall submit a detailed report / plan showing the location and infrastructure in place for managing and storing waste materials from the process. <i>1 month prior to the start of the installation commissioning date.</i>
POC 06	Detailed design - The operator shall submit a written report to the Environment Agency providing detailed design for the installation, including all drainage systems. <i>At least 3 months prior to the installation commissioning date.</i>
POC 07	Design of Abstraction/Discharge Points – The operator shall submit a written report for approval design proposal for the cooling water abstraction and discharge. This will confirm grid reference points for abstraction and discharge and measures to prevent entrapment, entrainment and impingement of marine flora/fauna. <i>At least 3 months prior to the installation commissioning date.</i>
POC 08	Site Closure Plan - The Operator shall submit a written Site Closure Plan to the Environment Agency. The plan (based on the final constructed plant design) should demonstrate how best environmental practice will be used to minimise impact on the environment during any closure or decommissioning of all or part of the site. Operations shall not commence until this plan has been approved in writing by the Environment Agency. <i>At least 3 months prior to start of operations.</i>

Table S1.5 Appropriate measures for fugitive emissions

Measure	Dates
1. All grabs discharging wood from ships shall be such that the wood-chip is enclosed within the grab while moved from ship to hopper. 2. All hoppers shall be designed such that grabs discharging wood from ships can enter the neck of the hopper prior to releasing wood chip. 3. All conveyors transporting wood chip from the ship to the storage areas or from there to the power station shall be enclosed. 4. Wood chip shall be stored within dedicated enclosed storage buildings. 5. All conveyors transporting wood chip from the storage areas to the power station shall be either enclosed or situated within enclosed buildings. 6. Ash shall be transferred from the combustion units into sealed bulk storage silos within a dedicated pressure relief system. 7. Ash shall only be stored within sealed bulk holding silos on site. 8. Transfer of ash from bulk storage to sealed bulk storage tankers for movement off-site shall occur within a dedicated enclosed system. 9. Ash shall only be transferred off-site within sealed bulk storage tankers.	As from start of operations at the site.

Schedule 2 – Raw Materials, fuels and waste types

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Biomass wood chip	In accordance with specification for Bio Fuels BS EN 14961
Gas oil	Less than 0.1% w/w sulphur content

Table S2.2 Permitted waste types and quantities for storage and transfer for off site disposal	
EWC code	Description
10 01 01	Bottom ash from peat and untreated wood
10 01 03	Fly-ash from peat and untreated wood
10 01 24	Sands from fluidised bed

Schedule 3 – Emissions and monitoring

For the purposes of this Schedule, the following interpretations shall apply:

- For the continuous measurement systems fitted to the LCP release points defined in Table S4.1 the validated hourly, 48hourly, monthly and daily averages shall be determined from the measured valid hourly average values after having subtracted the value of the 95% confidence interval.
- The 95% confidence interval for nitrogen oxides and sulphur dioxide of a single measured result shall be taken to be 20%.
- The 95% confidence interval for dust releases of a single measured result shall be taken to be 30%
- An invalid hourly average means an hourly average period invalidated due to malfunction of, or maintenance work being carried out on, the continuous measurement system. However, to allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period (40 minutes). Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period, such discretionary periods are not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing.
- Any day, in which more than three hourly average values are invalid shall be invalidated.
- A validated daily average is calculated for all calendar days during which the total period of valid data is 6 hours or longer. A validated daily average is then the arithmetic average without weighting of the validated hourly average within the reporting period.

Table S3.1 Point source emissions to air from new-new boiler plant – emission limits and monitoring requirements for LCP from date of operation

Emission point ref. & location	Parameter	Source	Limit (including unit)¹	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	Circulating fluidised bed boiler (Main Stack)	150mg/m ³	Daily mean of validated hourly averages	Continuous measurement	BS EN 14181
A1 [Point A1 on site plan in Schedule 7]	Particulate matter	Circulating fluidised bed boiler (Main Stack)	20mg/m ³	Daily mean of validated hourly averages	Continuous measurement	BS EN 13284-2
A1[Point A1 on site plan in schedule 7]	Sulphur dioxide	Circulating fluidised bed boiler (Main Stack)	150mg/m ³	Daily mean of validated hourly averages	Continuous measurement	BS EN 14181
A1[Point A1 on site plan in schedule 7]	Carbon Monoxide	Circulating fluidised bed boiler (Main Stack)	100mg/m ³	Daily mean of validated hourly averages	Continuous measurement	BS EN 15627-3
A1[Point A1 on site plan in schedule 7]	Hydrogen Chloride	Circulating fluidised bed boiler (Main Stack)	20mg/m ³	Daily mean of validated hourly averages	Continuous measurement	BS EN 15627-3
A1[Point A1 on site plan in schedule 7]	Ammonia	Circulating fluidised bed boiler (Main Stack)	No limit set	Minimum 1 hour sampling period	Quarterly in first year of operation. Then bi-annual	Procedural requirements of BS EN 14181
A1[Point A1 on site plan in schedule 7]	Lead	Circulating fluidised bed boiler (Main Stack)	0.05mg/Nm ³	Average over monitoring period	Quarterly in first year of operation. Then bi-annual	BS EN 14385
A1[Point A1 on site plan in schedule 7]	Mercury	Circulating fluidised bed boiler (Main Stack)	0.05mg/Nm ³	Average over monitoring period	Quarterly in first year of operation. Then bi-annual	BS EN 13211
A2 [Point A2 on site plan in schedule 7]	Particulates, oxides of nitrogen, sulphur dioxide, carbon monoxide	Auxiliary boilers			No monitoring required	
Various	Particulates, oxides of nitrogen, sulphur dioxide, carbon monoxide	Stand-by generator			No monitoring required	

¹ These limits do not apply during start up or shut down.

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
CW1 (position as indicated / agreed in response to POC07)	Flow	Cooling Water and Boiler blowdown	17,200 m ³ per day	24 hour period	Continuous	Flowmeter MCERTs
	Total Residual Oxidants (TRO)		<0.1 mg/l	Daily average	Continuous	Proprietary instrument
	PH		6-9 (inclusive)	Spot	Continuous	BS6068-2.50
	Temperature Summer (1st May to 30 th Sept)		30 deg C	Daily average	Continuous	Standard Thermocouple
	Temperature Winter (1st October to 31 st April)		25 deg C	Daily average	Continuous	
Surface water (SW1) (position as indicated / agreed in response to POC07)	Suspended solids	Surface water from non operational areas	150 mg/l	24 hour proportional sample	Weekly	BS EN 872
	Total hydrocarbon oil		15 mg/l	24 hour proportional sample	Weekly	IP426
Sewage (SW2) (position as indicated / agreed in response to POC07)	Biochemical Oxygen Demand	Sewage treatment plant effluent	60 mg/l	24 hour proportional sample	Monthly	BS EN 1899
	Suspended solids		90 mg/l	24 hour proportional sample	Weekly	BS EN 872
	Flow		120 m ³ per day	24 hour period	Continuous	Flowmeter MCERTs
Process effluent (PW1) (position as indicated / agreed in response to POC07)	Total hydrocarbon oil	Process effluent	15 mg/l	24 hour proportional sample	Weekly	IP426
	Flow		86 m ³ per day	24 hour period	Continuous	Flowmeter MCERTs

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	Parameter	Source	Limit (incl. Unit)	Reference period	Monitoring frequency	Monitoring standard or method
-	-	-	-	-	-	-

Table S3.5 Surface water monitoring requirements

Location or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
-	-	-	-	-

Table S3.6 Noise monitoring requirements

Location or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Perimeter noise survey as agreed in IP05	Noise	Annually	BS 4142:1997	-

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 - all parameters as required by condition 3.5.1	A1	Every 3 months	Start of operations
Emissions to water – all parameters as required by condition 3.5.1	A1	Every 3 months	Start of operations
Noise monitoring Parameters as required by condition 3.5.1	Perimeter noise survey as agreed in IP05	Every 12 months	Start of operations
Ash sampling and analysis	Ash silos	Every 3 months	Start of operations

Table S4.2: Annual production

Parameter	Units
Virgin Wood Burned	Tonnes
Power generated	MWhrs
Electricity Generated	MWhrs
Electricity exported to National Grid	MWhrs
Electricity Generation - Efficiency	%
Total Ash produced	Tonnes

Table S4.3 Performance parameters

Parameter	Frequency of assessment	Units
Total raw material usage, gas oil, wood etc	Annually	Tonnes/MWhrs produced.

Table S4.4 Reporting forms

Media/ parameter	Reporting format	Starting Point	Agency recipient	Date of form
Air	Form Air – 2 continuous monitoring or other form as agreed in writing by the Environment Agency	Permit issue	Area Officer	09/03/11
Water	Form water 1 or other form as agreed in writing by the Environment Agency	Permit issue	Area Officer	09/03/11
Water usage	Form water usage1 or other form as agreed in writing by the Environment Agency	Permit issue	Area Officer	09/03/11
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	Permit issue	Area Officer	09/03/11
Ash	Form performance 1 or other form as agreed in writing by the Environment Agency	Permit issue	Area Officer	09/03/11

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 malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

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

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

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B - to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of Anglesey Aluminium Metal Renewables Limited

Schedule 6 - Interpretation

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

“Agency recipient” means where this is “SI” the Environment Agency site inspector for the installation and where this is “Central Office” this is to an address of an Environment Agency national function separately notified to the operator.

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

“assessment year” means any complete calendar year except that the first assessment year for the purposes of this permit shall run from the date fuel is first burned in the installation.

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

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

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

“biomass” means:

- a) vegetable matter from agriculture and forestry;
- b) vegetable waste from the food processing industry, if the heat generated is recovered;
- c) fibrous vegetable waste from virgin pulp production and from production of paper from pulp, if it is co-incinerated at the place of production and the heat generated is recovered;
- d) cork waste;
- e) wood waste with the exception of wood waste which may contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coating, and which includes in particular such wood waste originating from construction and demolition waste.

“calendar monthly mean” means the value across a calendar month of all validated hourly means.

“CEN” means European Committee for Standardisation.

“Combustion Technical Guidance Note” means How to comply with your environmental permit. Additional guidance for Combustion Activities – (SGN1.01) dated April 2008 published by Environment Agency

“commissioning” means all activities between the end of construction of equipment and plant and its commercial operation date.

“DLN” means dry, low NO_x burners.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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

“ISO” means International Organization for Standardization.

“installation” means the process subject to this permission.

“large combustion plant” or *“LCP”* is a combustion plant or group of combustion plants discharging waste gases through a common windshaft or stack, where the total thermal input is 50 MWth or more, based on gross calorific value.

“Large Combustion Plant Directive” means Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants (O.J. L 309/1, 27.11.2001).

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

“mcr” means maximum continuous rating.

“natural gas” means naturally occurring methane with no more than 20% by volume of inert or other constituents.

“ncv” means net calorific value.

“operational hours” of an LCP are whole hours commencing from the first unit ending start up and ending when the last unit commences shut down.

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

“shut down” means the operation of the gas turbines from Stable Export Limit to no generation.

“start up” means the operation of the gas turbines until stable combustion at the Stable Export Limit has been reached.

“waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

- *“year”* means calendar year ending 31 December.

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

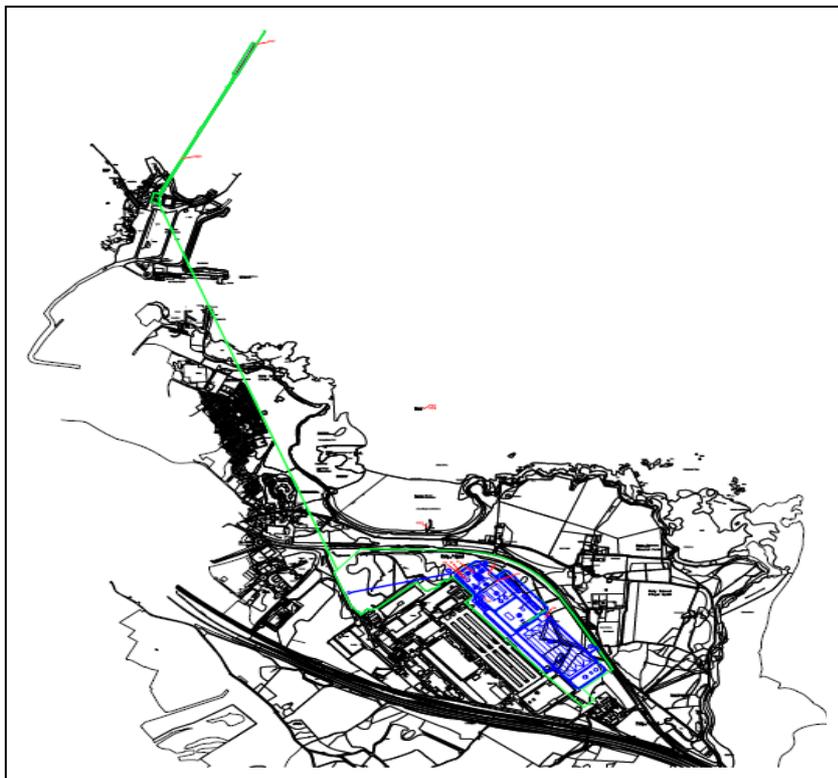
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- (a) in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- (b) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content

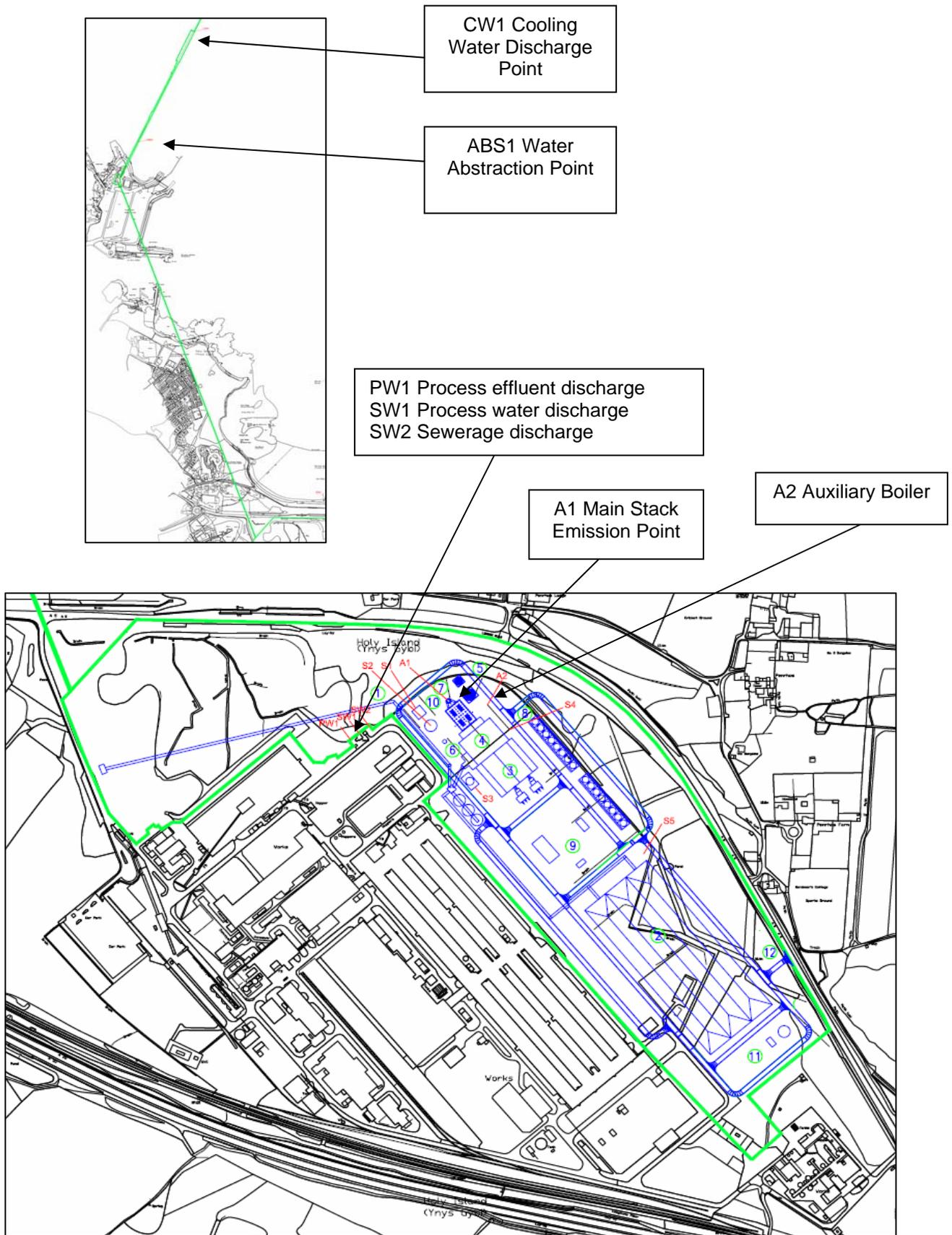
Schedule 7 - Site plan



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Schedule 7 - Site plan (Continued)



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