

## **Permit with introductory note**

The Environmental Permitting (England & Wales) Regulations 2016

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Toyota Motor Manufacturing (UK)  
Limited

Deeside Engine Casting Plant  
Zone 3  
Deeside Industrial Estate  
Flintshire  
CH5 2TW

Permit number  
EPR/BK6483IU

# Deeside Engine Casting Plant

## Permit number EPR/BK6483IU

### Introductory note

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

The main purpose of the activity at the installation is the production of aluminium castings for car engines, specifically cylinder heads, cylinder blocks and lower cases. Subsequent assembly of the engines is carried out on the same site but not as part of the permitted installation. Production is up to about 480,000 engines per year.

The casting plant has two production lines. Cylinder blocks and lower cases are made by forcing measured amounts of molten aluminium at high pressure into a die which has been pre-coated with a release agent. After solidification, runners and gates are removed (for recycle to melting) and the casting is inspected and stored at relatively low pressure. Cores are removed, then the castings are put through two stages of heat treatment with a water quench in between.

For “High-Pressure Die Casting” and “Low-Pressure Die Casting”, two tower-type furnaces are installed, of 7 tonne and 4 tonne design holding capacity, and 2.5 and 1.5 tonne/hour melting capacity respectively. They are gas-fired, with the combustion gases drawn up the tower where fresh aluminium ingot and clean recycled metal are charged. Dross is only removed with burners at low-fire, and additional air is drawn across the front of the drossing door up into a hood, to capture fugitive emissions.

Five core moulding machines are currently installed, two of which make two moulds at a time. Electrically-heated dies are filled with foundry sand from hoppers, closed, and the sand allowed to cure. After cooling they are inspected and stored pending use in low-pressure casting.

Emissions to air from the melting furnaces pass through fabric filters with upstream injection of lime to abate particulate matter and acid gases. Releases from low-pressure casting and core moulding pass to atmosphere via an odour scrubber, which uses Fenton’s reagent to abate odorous pollutants such as amines.

Water is used in the process mainly for cooling/quenching, in the die lubricator mixer, die washing and in the odour scrubber. Some evaporates, the rest passes to the waste water treatment plant where, along with waste water from the engine plant, part of it undergoes floc-treatment prior to discharge to sewer.

Waste streams from the process include spent sand, sludge from the waste water treatment plant, fabric filters, bag house dust and refractory linings.

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

**Status log of the permit**

<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application EPR/BK6483	03/12/01	
Additional information received	27/06/02	
Additional information received	25/07/02	
Additional information received	09/10/02	
Permit determined EPR/BK6483	20/12/02	
Variation application EPR/NP338LX		
Variation application determined	18/07/06	
Variation application EPR/QP3138MX	31/11/06	
Additional information received	27/02/07	
Variation application determined QP3138MX	05/03/07	
Variation application EPR/BK6483IU/V003	06/11/08	
Additional information received	04/09/09	
Variation application determined EPR/BK6483IU/V003	27/10/09	
Variation application EPR/BK6483IU/V004	Duly made 20/01/11	
Variation determined EPR/BK6483IU	21/02/11	
Application EPR/BK6483IU/V005 (variation application)	Duly made 28/07/15	Application for a minor technical variation to change monitoring reference periods for air emissions
Variation determined EPR/BK6483IU/V005	28/10/15	Varied permit issued
Regulation 60(1) Notice of request for information	27/07/16	
Regulation 60(1) response received	04/11/16	Implementation of BAT conclusions under IED
Additional information received	15/12/16	
Natural Resources Wales Non-Ferrous Metals Sector Review 2016 Variation issued EPR/BK6483IU/V006 Permit EPR/BK6483IU	18/12/17	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/BK6483IU**

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

**Toyota Motor Manufacturing (UK) Limited** (“the operator”),  
whose registered office is

**Burnaston  
Derby  
DE1 9TA**

company registration number **02352348**

to operate an installation at

**Deeside Engine Casting Plant  
Zone 3  
Deeside Industrial Estate  
Flintshire  
CH5 2TW**

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

Signed

Date

<i>A.M. Lewis</i>	<b>18/12/2017</b>
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Anna Lewis, Principal Permitting Officer

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.

## **2.4 Improvement programme**

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

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

# **3 Emissions and monitoring**

## **3.1 Emissions to water, air or land**

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

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

3.1.3 Where a substance is specified in schedule 3 table S3.2 or S3.3 but no limit is set for it, the concentration of such substance in emissions to water from the relevant emission point shall be no greater than the background concentration.

3.1.4 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) process 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 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 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.
- 4.3.4 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
- 4.3.5 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.
- 4.3.6 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:
- (b) 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:
- (c) any change in the operator's name or address; and
  - (d) any steps taken with a view to the dissolution of the operator.

- 4.3.7 Natural Resources Wales shall be given at least 14 days notice before implementation of any part of the site closure plan.
- 4.3.8 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**

<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity and WFD Annex I and II operations</b>	<b>Limits of specified activity and waste types</b>
A1	Section 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; and (ii) any furnace (other than a vacuum furnace), bath or other holding vessel used in the plant for the melting has a design holding capacity of 5 or more tonnes	Two tower furnaces for melting aluminium and one 1 tonne / hour crucible furnace for recovery of aluminium	Receipt of raw materials production of the finished castings; Abatement equipment and plant used for releases to atmosphere
A2	Section 5.4 A(1)(a): Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving one or more of the following activities, and excluding activities covered by Council Directive 91/271/EEC concerning urban waste-water treatment(a)- (ii) physico-chemical treatment	Collection and treatment of effluents from the installation	Receipt, balancing and treatment of all process waters, including floc treatment, post settlement, sludge removal and discharge to sewer
<b>Directly Associated Activity</b>			
A3	Casting	High and Low Pressure Die Casting and associated machining	Within the boundary of the installation
A4	Mould preparation	Preparation and curing of sand moulds	Within the boundary of the installation
A5	On site recovery of Swarf	Swarf washing, centrifuge, drying and direct charging into the melt furnace	Within the boundary of the installation

**Table S1.2 Operating techniques**

Description	Parts	Date Received
Application	The response to questions 2.1 (pages 3-11), 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10 and 2.11 of the corresponding sections of the Application	03/12/01
Response to Schedule 4 Part 1 Notice	Response to Question 2 to 40	27/06/02 and 25/07/02
Supplementary information	Additional information in response to questions 6, 7, 9, 10, 12, 17, 18 and 39	09/10/02
Application for Variation	The response to question 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11 of the Application	13/11/06
Supplementary information	Additional Information in response to request made 13/02/07	27/02/07
Regulation 16 Agreement	All-replacement of cyclones with bag Filters	17/03/08
Regulation 16 Agreement	All relocation of existing melt furnace	14/07/08
Amended Application for Variation	Response to Question C2	20/10/09
Response to Improvement Condition IC 24	Letter dated 15/12/09	21/12/09
Application for Variation EPR/BK6483IU/V004	Sections 2.2 of the application detailing the Swarf Recycling Scheme	Duly made 20/01/11
Application for Variation EPR/BK6483IU/V004	Appendix 2 Waste Acceptance Procedure	Duly made 20/01/11
Letter received regarding the installation of a new sand core moulding machine	All parts of the letter	25/07/16
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	04/11/16 and 15/12/16
Letter received regarding the installation of a rotary degasser in the 2.5 tonne melt tower	All parts of the letter	28/07/17

**Table S1.3 Improvement programme requirements**

Reference	Requirement	Date
IC 1	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 30 <sup>th</sup> June 2020.	Once a year commencing on 18/12/2018 until 20/06/2020
	The report shall address BAT Conclusion 83	

## Schedule 2 - Waste types, raw materials and fuels

**Table S2.1 Raw materials and fuels**

Raw materials and fuel description	Specification
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**Table S2.2 Permitted waste types and quantities for the use of third party scrap aluminium and swarf from machining operations**

Maximum quantity	10,000 tonnes per year
Waste code	Description
12 01 03	Non-ferrous metal filings and turnings

## Schedule 3a – Emissions and monitoring – Emissions until 29<sup>th</sup> 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
ST1 [Point ST1 on site plan in Schedule 7]	Odour scrubber emissions from core moulding process	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 13284-1
		Volatile organic compounds (as carbon)	50 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 12619
		Formaldehyde	1 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	US EPA Method 316 or BS CEN/TS 13649, analysis to NIOSH 2016 or NIOSH 2539 for aldehydes
		Phenol	0.25 mg/m <sup>3</sup>	Customised average to achieve Limit of Detection below ELV. (Typically 4 hours)	Annually	BS CEN/TS 13649, OSHA or NIOSH 2546
		Ammonia	No limit set	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14791, adapted for ammonia
ST2 [Point ST2 on site plan in schedule 7]	Bag filter emissions from melting furnaces and crucible furnace	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BE EN 13284-1
		Oxides of nitrogen (as nitrogen dioxide)	100 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14792
		Carbon monoxide	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 15058
		Hydrogen chloride	10 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 1911
		Fluorides	1 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS ISO 15713
ST4 [Point ST4 on site plan in schedule 7]	Heat treatment	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 13284-1
		Oxides of nitrogen (as nitrogen dioxide)	100 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14792
		Carbon monoxide	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	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
ST9 [Point ST9 on site plan in schedule 7]	Sand reclamation furnace	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BE EN 13284-1
		Oxides of nitrogen (as nitrogen dioxide)	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14792
		Carbon monoxide	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 15058
		Formaldehyde	7 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	US EPA Method 316 or BS CEN/TS 13649, analysis to NIOSH 2016 or NIOSH 2539 for aldehydes
		Ammonia	10 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14791, adapted for ammonia
ST10 [Point ST10 on site plan in schedule 7]	Sand heater dust collector	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BE EN 13284-1
		Oxides of nitrogen (as nitrogen dioxide)	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14792
		Carbon monoxide	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 15058
ST11 [Point ST11 on site plan in schedule 7]	Sand coating fume furnace	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BE EN 13284-1
		Oxides of nitrogen (as nitrogen dioxide)	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14792
		Carbon monoxide	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 15058
		Formaldehyde	7 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	US EPA Method 316 or BS CEN/TS 13649, analysis to NIOSH 2016 or NIOSH 2539 for aldehydes
		Ammonia	10 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14791, adapted for ammonia

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

<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
ST12 [Point ST12 on site plan in schedule 7]	Low pressure casting sand knockout	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 13284-1

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

<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (incl. unit)</b>	<b>Reference Period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
W1 [Point W1 on site plan in schedule 7]	Casting building roof and roadways	Clean, uncontaminated rainwater	No limit set	None set	None set	None set
W2 [Point W2 on site plan in schedule 7]	Waste water treatment plant roof	Clean, uncontaminated rainwater	No limit set	None set	None set	None set

**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]	Waste water treatment plant	Suspended solids	200 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	BS EN 872
		Chemical oxygen demand	1500 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	BS 6068-2.34
		Hydrocarbon oils	150 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	SCA blue book 77 ISBN0117517283
		Copper and its compounds expressed as Cu	1 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	BS EN ISO 11885
		Zinc and its compounds expressed as Zn	2 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	BS EN ISO 11885
		Lead and its compounds expressed as Pb	1 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	BS EN ISO 11885
		Nickel and its compounds expressed as Ni	1 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	BS EN ISO 11885

**Table S3.4 Process monitoring requirements**

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Sand reclamation furnace, ST9	Temperature	Continuous	Letter dated 15/12/09	
Coating fume incinerator ST11	Temperature	Continuous	Letter dated 15/12/09	

## Schedule 3b – Emissions and monitoring – Emissions from 30<sup>th</sup> June 2020

<b>Table S3.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
ST1 [Point ST1 on site plan in Schedule 7]	Odour scrubber emissions from core moulding process	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 13284-1
		Volatile organic compounds (as carbon)	50 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 12619
		Formaldehyde	1 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	US EPA Method 316 or BS CEN/TS 13649, analysis to NIOSH 2016 or NIOSH 2539 for aldehydes
		Phenol	0.25 mg/m <sup>3</sup>	Customised average to achieve Limit of Detection below ELV. (Typically 4 hours)	Annually	BS CEN/TS 13649, OSHA or NIOSH 2546
		Ammonia	No limit set	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14791, adapted for ammonia
ST2 [Point ST2 on site plan in schedule 7]	Bag filter emissions from melting furnaces and crucible furnace	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	6 monthly	BE EN 13284-1
		Oxides of nitrogen (as nitrogen dioxide)	100 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14792
		Carbon monoxide	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 15058
		Hydrogen chloride	10 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 1911
		Hydrogen fluorides	1 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS ISO 15713
		Dioxins and furans (ITEQ)	0.1 ng/m <sup>3</sup>	Periodic over minimum 6 hours, maximum 8 hour period	Annually	BS EN 1948 Parts 1, 2 and 3
		Volatile organic compounds (as carbon)	30 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 12619
		Heat treatment	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually

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

<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
ST4 [Point ST4 on site plan in schedule 7]		Oxides of nitrogen (as nitrogen dioxide)	100 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14792
		Carbon monoxide	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 15058
ST9 [Point ST9 on site plan in schedule 7]	Sand reclamation furnace	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BE EN 13284-1
		Oxides of nitrogen (as nitrogen dioxide)	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14792
		Carbon monoxide	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 15058
		Formaldehyde	7 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	US EPA Method 316 or BS CEN/TS 13649, analysis to NIOSH 2016 or NIOSH 2539 for aldehydes
ST10 [Point ST10 on site plan in schedule 7]	Sand heater dust collector	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BE EN 13284-1
		Oxides of nitrogen (as nitrogen dioxide)	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14792
		Carbon monoxide	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 15058
ST11 [Point ST11 on site plan in schedule 7]	Sand coating fume furnace	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BE EN 13284-1
		Oxides of nitrogen (as nitrogen dioxide)	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14792
		Carbon monoxide	150 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 15058
ST11 [Point ST11 on site plan in schedule 7] (cont.)		Formaldehyde	7 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	US EPA Method 316 or BS CEN/TS 13649, analysis to NIOSH 2016 or NIOSH 2539 for aldehydes

**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
		Ammonia	10 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 14791, adapted for ammonia
ST12 [Point ST12 on site plan in schedule 7]	Low pressure casting sand knockout	Dust	5 mg/m <sup>3</sup>	Periodic over minimum 30 minutes, maximum 8 hour period	Annually	BS EN 13284-1

**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]	Casting building roof and roadways	Clean, uncontaminated rainwater	No limit set	None set	None set	None set
W2 [Point W2 on site plan in schedule 7]	Waste water treatment plant roof	Clean, uncontaminated rainwater	No limit set	None set	None set	None set

**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]	Waste water treatment plant	Suspended solids	200 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	BS EN 872
		Chemical oxygen demand	1500 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	BS 6068-2.34
		Hydrocarbon oils	150 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	SCA blue book 77 ISBN0117517283

**Table S3.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements**

<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (incl. Unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
		Copper and its compounds expressed as Cu	1 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	BS EN ISO 11885
		Zinc and its compounds expressed as Zn	2 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	BS EN ISO 11885
		Lead and its compounds expressed as Pb	1 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	BS EN ISO 11885
		Nickel and its compounds expressed as Ni	1 mg/l	Composite of continuous sampling in a 24 hour period	Whilst discharging	BS EN ISO 11885

**Table S3.4 Process monitoring requirements**

<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
Sand reclamation furnace, ST9	Temperature	Continuous	Letter dated 15/12/09	None set
Coating fume incinerator	Temperature	Continuous	Letter dated 15/12/09	None set

## 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	ST1, ST2, ST4, ST5, ST10, ST11 and ST12	Every 12 months	1 January
Emissions to sewer Parameters as required by condition 3.3.1	S1	Every 12 months	1 January

**Table S4.2 Annual production/treatment**

Parameter	Units
Castings produced	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
Dross removed from site	Annually	tonnes
Bag filter dust	Annually	tonnes
Furnace linings	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	28/07/09
Sewer	Form sewer 1 or other form as agreed in writing by Natural Resources Wales	18/12/17
Water usage	Form water usage 1 or other form as agreed in writing by Natural Resources Wales	28/07/09
Energy usage	Form energy 1 or other form as agreed in writing by Natural Resources Wales	28/07/09
Other performance indicators	Form performance 1 or other form as agreed in writing by Natural Resources Wales	11/02/11

# 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	

<b>(a) Notification requirements for any activity that gives rise to an incident or accident which significantly affects or may significantly affect the environment</b>	
<b>To be notified within 24 hours</b>	
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>(b) Notification requirements for the breach of a permit condition</b>	
<b>To be notified within 24 hours</b>	
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	

<b>Time periods for notification following detection of a breach of a limit</b>	
<b>Parameter</b>	<b>Notification period</b>

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**(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.	

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

\* 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.

*“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.

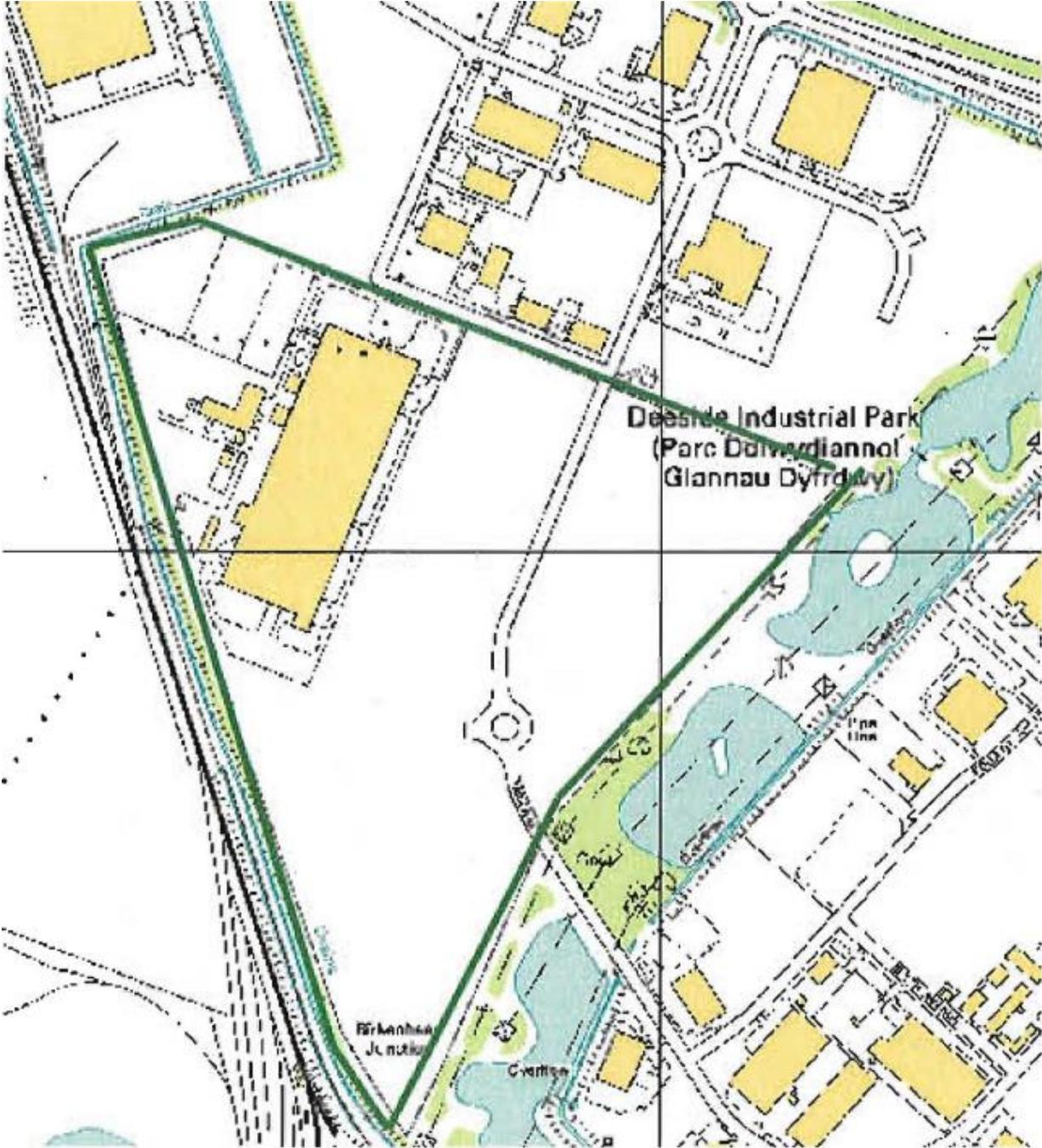
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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

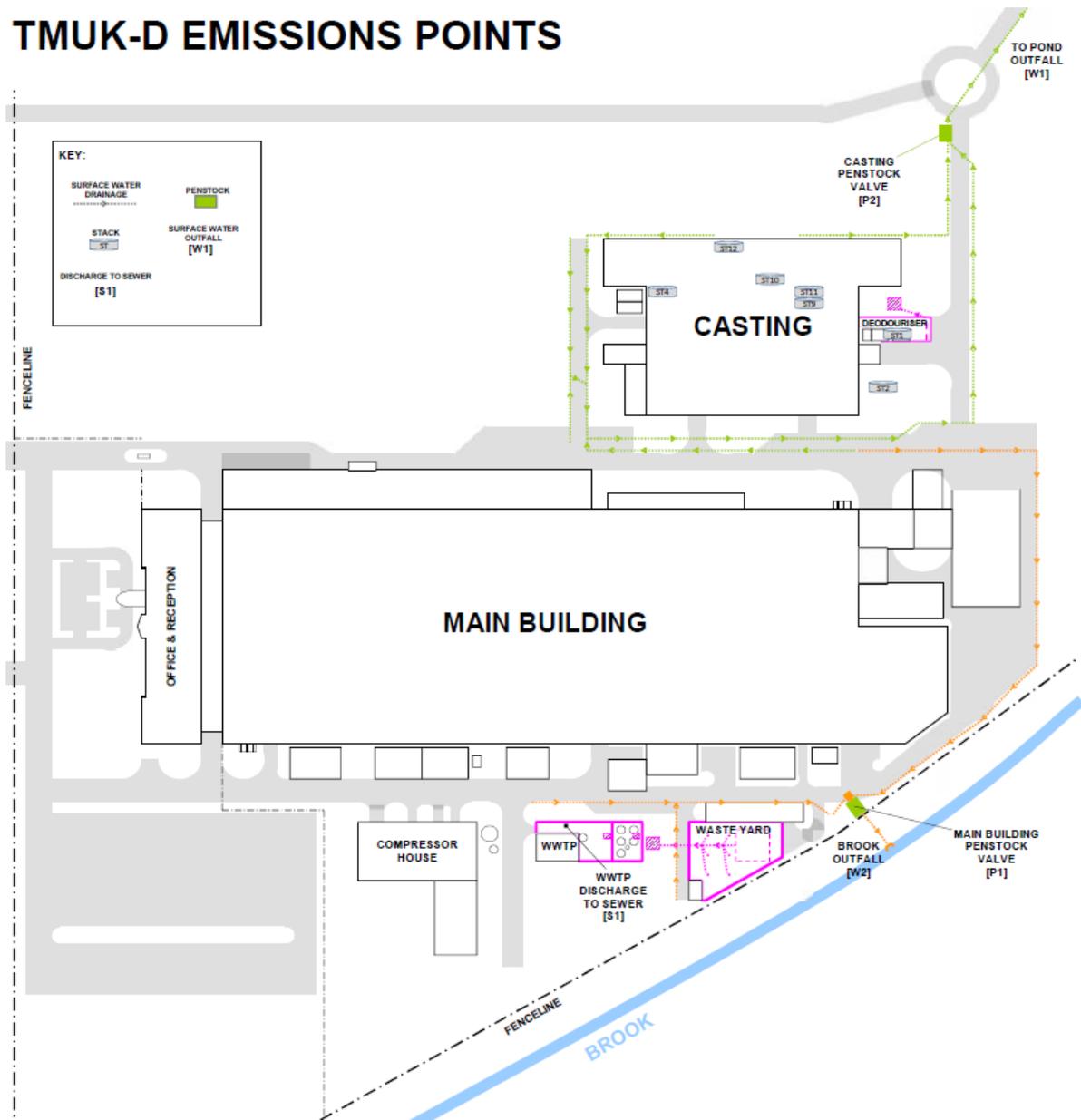
# Schedule 7 - Site plan



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SITE LAYOUT PLAN

# TMUK-D EMISSIONS POINTS



END OF PERMIT