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Wales

## **Permit with introductory note**

The Environmental Permitting (England & Wales) Regulations 2016

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**Tata Steel UK Limited**

**Port Talbot Steelworks  
Port Talbot  
SA13 2NG**

Permit number

**EPR/BL7108IM**

# Port Talbot Steelworks

## Permit number EPR/BL7108IM

### Introductory note

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

#### **Description of the Installation**

Port Talbot integrated iron and steelworks is owned by Tata Steel UK Ltd. The site is situated next to Margam Moors, with Port Talbot Docks bordering the site to the north with the town of Port Talbot, motorway, the main line railway and the PDR forming the eastern boundary. To the southwest of the site is Swansea Bay and Margam Sands.

Liquid steel production from its 2 blast furnaces at full capacity is approximately 5 million tonnes per annum.

The integrated steel works has several identifiable processes which are carried out sequentially across the installation in order to convert the raw iron ores and coal to semi finished (slab) and finished steel products (such as hot rolled, pickled and oiled, cold rolled and annealed).

#### **Raw materials**

Bulk raw materials arrive by large bulk carrier at the deep water port at the site and are discharged by unloader cranes onto conveyors. The raw materials are stocked out in discrete stockpiles in the ore stocking areas on the north western side of the Works whereas the coal stockyards are located on the southern end of the site near the coke ovens. Ferrous raw materials including Lump ore and pellets along with non-ferrous inputs such as lump fluxes and purchased coke are fed directly to the blast furnaces and/or the BOS plant. Finer ferrous materials along with fluxes, solid fuel fines and various residues (reverts) from throughout the steel production processes are stockpiled in the ore stockyards before being blended together into a sinter feed bed.

#### **Sinter production**

Beds of sinter feed are recovered by barrel reclaimers. This blend of sinter bed material, fluxes, coke breeze and limestone is fed onto a travelling grate known as a "strand" at the Sinter Plant where it is ignited. Air is drawn through the bed of material raising the temperature to ~1300°C. The flame front fuses the fine material into a clinker known as "sinter". This sinter is cooled and screened prior to being transferred to the blast furnace stockhouse. The products of combustion pass through an electrostatic precipitator and are discharged through a 133 m high stack.

#### **Coke making**

Coal is also carefully blended to form a coal mix and layered in coal beds prior to being recovered by a reclaimer and can be blended in silos and taken by conveyor belt to the Morfa Coke Ovens. Here the coal (as well as other non-metallic substances such as coal tar) is charged to airtight ovens using a set of four mobile hoppers. Once in the ovens, the coal is heated at a temperature of between 1200 -1300 °C for a period of around 18 hours to produce coke. At the end of the coking cycle, the red hot coke is pushed out of the oven into a rail car is transported to a quenching tower where it is quenched by water. The releases

from the pushing operation are collected by a collection system and pass through a water scrubber before being released from one of three stacks. After quenching the coke is transferred to the blast furnace for use within the iron production process.

The gas driven off coal during the coking cycle is cooled, cleaned and useful by-products removed either for re-use or sale. Clean gas is recycled within the site as fuel for heat or electricity production. Excess gas may be burned off at the Coke Ovens Flare Stack.

The effluent from the by-products plant is first treated with alkali to release ammonia (which is incinerated) before being sent to a biological effluent treatment process for further treatment. The treated effluent and cooling water is then discharged into the site effluent collection system where it mixes with the other effluents produced within the Works. The combined site effluent is discharged through a long sea outfall into Swansea Bay.

### **Granulated Coal Injection Plant**

Coal is delivered to the department mainly by ship via a boom stacker to one of the stock yards, with a small tonnage delivered by road / rail. The coal is then transported from the yard to the processing plants via a conveyer system.

The coal is crushed and dried in an inert atmosphere to temperatures in excess of 100°C to reduce the moisture content to less than 1.5%. The hot gases used to dry the coal are generated from a dual fuel burner using Blast Furnace Gas (BFG) as the primary fuel with natural gas as a backup should BFG not be available. The moisture and products of combustion are passed through a bag filter before being discharged via a stack.

### **Iron production – Blast furnaces**

At the Blast Furnace stockhouse coke, iron ore, pellets and sinter, along with fluxes, are carefully weighed and batched to be charged to the blast furnace. The Blast Furnace operates on a continuous basis and is maintained at a full stockline level by charging alternate layers of coke and ferrous materials. Air produced at a high pressure in the Power Station is passed through the furnace stoves where it is heated to temperatures in the range of 1000- 1200 °C. This high pressure, hot air (or blast) is then injected together with pulverised granulated coal into the furnace at tuyere level, just above the hearth and flows upwards to the top of the furnace. The air reacts with carbon bearing materials at the tuyeres to form carbon monoxide, reducing the iron ore to iron as it travels up the furnace. Further reduction of the iron ore is undertaken directly by the coke in the bosh and stack areas of the furnace.

Gangue material in the ores and coke agglomerate together to form a slag which is molten at the high temperatures produced from the exothermic reduction reactions. The molten iron and molten slag produced in the furnace both fall to the hearth where they are periodically "tapped" through a taphole.

The blast furnace gas leaves the furnace top at usually about 2.0 bar pressure and is cooled and cleaned in the gas cleaning system. Cleaned gas is then used as a fuel for purposes such as coke oven under firing, power plants or stoves. Excess gas can either be burnt or vented through several flarestacks or vents. The iron and slag flowing from the taphole are separated in the iron runner with the slag being skimmed off the top of the iron into the slag runner to be further

processed in the slag pit or granulator, as necessary. The iron flows underneath a skimmer arrangement to ensure slag free iron can then pass into mobile torpedo ladles to allow transportation by rail to the steel plant. Excess iron may be ponded and 'plated' in the iron ponds, this route leads to high energy losses as it produces cold iron which has to be returned to the process as scrap.

### **Steel Production – Basic Oxygen Steelmaking (BOS)**

The liquid iron from the Blast Furnaces is transported by rail to the BOS plant in refractory lined torpedoes with a capacity of up to 350 tonnes. On arrival at the BOS plant the molten iron in the torpedo is poured into a charging ladle with a capacity of approximately 250 tonnes. Then the iron is desulphurised, as necessary, prior to transfer to the steelmaking vessel. In the desulphurisation process the sulphur in the iron is removed to a slag by injecting magnesium and lime into the iron. The slag is then skimmed off, cooled and sent for further processing. Fume from the process is extracted through a bag filtration plant prior to discharge.

Iron is then charged from the ladle to one of two BOS vessels where scrap and fluxes are added. The process of converting iron to steel is termed a "heat". Iron charging fume and secondary fume from the BOS heat is extracted through bag filtration plant prior to discharge. Oxygen is blown into the converter at supersonic velocity controlled by a complex software system that automatically adjusts the oxygen lance height during the blow period according to the vessel volume. After sampling for quality, the heat, now steel, may be re-blown for a final trim or tapped into a steel ladle for further secondary processing. Primary fume from the BOS process is cleaned in a gas cleaning plant and collected for use as a fuel elsewhere in the works. Excess and below specification gas is flared off via one of two flare stacks. Slurry from the gas cleaning plant goes for further treatment by a contractor (currently Harsco Metals Group Limited) prior to sale, internal use or landfill. Slag from the vessel is de-metalled by a contractor (currently Harsco Metals Group Limited) and then either received by a slag handling company (currently Cambrian Stone Limited) for further treatment or used as aggregate on the site or disposed of to the onsite landfill.

### **Secondary Steelmaking**

Following the BOS primary steelmaking process the steel can go through a number of secondary steelmaking processes before being converted into a solid form. At Port Talbot, the molten steel may be refined to customer requirements in the RD KTB or the RH recirculation degassers or CAS 1 and CAS 2 composition adjustment sealed treatments; all of which have fume collection facilities.

### **Continuous casting**

Following treatment to the customer requirements, the steel is transported to the continuous casting plant (Concast) to form solidified steel slabs. At Concast the steel is vertically teemed (through shrouds) into tundishes and then into reciprocating cooled copper moulds via submerged entry shrouds. The steel is then drawn from the mould in a semi-finished partially solid slab and cooled whilst it is drawn down through the continuous casting machine to the horizontal plane and cut to length. The plant currently consists of three slab casters and has provision for tundish changing and sequential casting of different steel grades to allow long production sequences. Cooling water from the plant is recycled and any scale formed is recycled back to the sinter process.

### **Slab Rolling and treatment**

The slabs may need to be scarfed for surface quality by a contractor. Slabs can be sold on the open market or then hot or cold connected to the Hot Rolling Mill on the Port Talbot site. At the Port Talbot Hot Mill, hot or cold slabs are heated in reheat furnaces to around 1250°C. The hot slabs are reduced in gauge via the reversing roughing mills and the finishing train and coiled into Hot Rolled Coil (HRC). Hot Rolled Coil can then be sold, or be pickled and transferred to the Cold Mill for further reduction and annealing. Cold rolled steel is brittle and requires further annealing to recover the mechanical properties of the metal. Annealing is carried out either in a continuous annealing plant or Ebner Furnaces and the finished coils are then packaged and transported to customers. Hot rolled and cold rolled coils are transported to customer by rail or road.

Ferrous chloride solution from the Cold Mill Effluent Treatment Plant (ETP) is treated and processed and by a contractor authorised by a distinct environmental permit and for the purposes of recovering a useful iron oxide fraction. The iron oxide waste is transferred offsite for further processing.

### **Waste production, reuse and disposal**

Non-hazardous waste from the installation may be disposed of at the Morfa non-hazardous internal landfill site. Tata Steel has two PPC permits for separate hazardous & non-hazardous waste at internal landfills. The primary recycling streams, by products and wastes are identified and quantified in the landfill permits.

The Tata Steel Installation itself also operates (via a contractor) a materials recycling and recovery facility at two internal areas known as the "HAA" and "Yard Zero". The HAA facility is used for the processing of site generated wastes to aggregates, but is also permitted to accept designated wastes from outside the installation. The facility is permitted to then process or treat internal and external waste to various quality protocols, to allow the now recovered waste materials to then be sold as aggregates.

Tata Steel also operates (via a contractor) a waste treatment facility at 'Yard Zero' within the raw material stockyards. Various iron-rich raw materials, by-products and wastes are blended and pelletised. The finished pellets are then recycled as a feedstock at the sinter plant and blast furnaces. The permit specifies the type of waste materials which can be used for this purpose.

### **Site energy production**

The major energy input into the Port Talbot site is in the form of coal which accounts for the majority of all delivered energy. This coal is converted to coke in the coke oven plant and the arising by-product gas (Coke Oven Gas) is distributed throughout the site for use as a fuel. Additional coke is imported. The coke is charged into the blast furnace where it acts as a reductant to produce iron. As a consequence of the ironmaking process vast quantities of low calorific value gas (Blast Furnace Gas) are produced. This gas is fired on the blast furnace stoves, the Power Station (boilers) and the Coke Ovens. BOS gas is collected from the steelmaking process and used mainly in the Power Station boilers. The above integration of energy producers and consumers enables the maximum use of the site's own, or indigenous, gases (coke oven gas, blast furnace gas and BOS gas) and minimises the use of purchased premium fuels such as natural gas and heavy fuel oil.

### Water sources for the site

The water used by this integrated works comes from a number of sources; the river Afan supplies water to the Old Dock in Port Talbot and this in turn is used as cooling and process water for the western part of the site along with abstraction from the Ffrwdwyllt stream.

The Castell and the Kenfig rivers are used to supply Eglwys Nunydd reservoir with water. This reservoir feeds the majority of the process water used within the site although some is also used for evaporative cooling. The drainage from the nearby Margam Moors (Point A) is either collected or used as process or cooling water and the excess enters the Tata effluent system and is discharged along with the site effluent through the long sea outfall.

There is a river, the Arnallt, which enters the northern part of the site where it is pumped across the site and the water is discharged on to the beach at Margam. At high flow rates, the transfer pumps can be overwhelmed and in these circumstances the excess flow enters the Tata effluent system.

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

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application received BL7108IM	Duly made 31/08/01	Application for Integrated Steelworks at Port Talbot
Permit determined BL7108IM	31/03/04	Original permit issued to Corus UK Limited
Variation determined AP3330BE (BL7108IM/V002)	08/11/04	LCPD requirements
Application RP3730BV	Duly made 17/09/04	Changes made in order to maximise production capacity
Variation determined RP3730BV (BL7108IM/V003)	20/02/05	
Application PP3837SQ	Duly made 27/07/05	Trials for use of waste oils in boilers and new monitoring standards
Variation determined BP3933LD (BL7108IM/V004)	01/10/05	Improvements to reduce the release of kish
Variation determined FP3935LM (BL7108IM/V005)	03/02/06	Improvement to categorising of complaints
Variation determined PP3837SQ (BL7108IM/V006)	12/05/06	Time limited variation issued
Variation determined TP3139XJ (BL7108IM/V007)	21/12/07	NERP requirements implemented

**Status log of the permit**

<b>Description</b>	<b>Date</b>	<b>Comments</b>
Variation determined EPR/BL7018IM/V008	29/06/09	BOS gas recovery system introduced, new quench and cooling towers plus lignite injection
EA variation determined EPR/BL7018IM/V009	09/08/10	Changes following Port Talbot Steelworks permit review (PM <sub>10</sub> )
Variation determined EPR/BL7108IM/S010	19/11/10	Partial surrender of land. Amended site plan. Operator name change to Tata Steel UK Limited
EA variation determined EPR/BL7108IM/V011	02/02/12	Variation to address Article 10 of the IPPC Directive in relation to air quality
Application EPR/BL7108IM/V012	Duly made 16/04/12	Application for blast furnace 4 rebuild. BOS off-gas recovery, COG triple flare stack replacement
Variation determined EPR/BL7108IM/V012	12/07/12	Varied permit issued
NRW variation determined EPR/BL7108IM/V013	12/06/13	Variation to implement the changes introduced by IED
Regulation 60(1) Notice of request for more information	06/06/13	Implementation of BAT conclusions under IED
Regulation 60 (1) response	27/09/13	Response received from Tata Steel UK Limited
NRW Variation and consolidation determined EPR/BL7108IM/V014	20/04/15	Varied and consolidated permit issued.
Application EPR/BL7108IM/V015	Duly Made 05/06/15	Application to upgrade internal energy generation plant (The Power Station). Reinstatement Minister Stein hood outage condition.
Variation determined	08/02/16	Varied and consolidated permit issued.
Application EPR/BL7108IM/V016	Duly Made 11/04/2017	Application to add the HAA facility to the permit as well as derogations for COG desulph, Sinter De-dust and suspended solids
Additional information received	07/08/2017	Additional details received for a pelletising process to take place at "Yard 0" for inclusion in application EPR/BL7108IM/V016
Additional information received	22/12/2017	Further clarification of the boundary of "Yard 0" and further details of waste materials requested to be added to the variation
Additional information received	07/05/2018	List of Wastes accepted at HAA and Yard Zero
Additional information received	31/05/2018	Update to Overarching Operating Techniques document and confirmation of required waste

**Status log of the permit**

<b>Description</b>	<b>Date</b>	<b>Comments</b>
		storage and treatment tonnages at the HAA and Yard 0 areas.
Variation determined	26/06/2018	Varied and consolidated permit issued

**Other Part A installation permits relating to this installation**

<b>Operator</b>	<b>Permit number</b>	<b>Date of issue</b>
Harsco Metals Group Ltd	EPR/BP3635MR	02/03/2016
Cambrian Stone Ltd	EPR/BL5636IF	02/03/2016
Tata Steel UK Ltd (Hazardous Landfill)	EPR/BW3692IM	17/12/2004
Tata Steel UK Ltd (Non-hazardous Landfill)	EPR/BW7311IE	17/12/2004
Runtech Ltd	EPR/AB3595FF	29/09/2017
Industrial Chemicals Limited	EPR/AB3192HQ	04/07/2016

End of introductory note

# Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number  
**EPR/BL7108IM**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BL7108IM/V016 authorising,

**Tata Steel UK Limited** (“the operator”),  
whose registered office is

**30 Millbank  
London  
SW1P 4WY**

company registration number **2280000**

to operate an installation at

**Port Talbot Steelworks  
Port Talbot  
SA13 2NG**

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

Signed	Date
<b>Holly Noble</b>	<b>26/06/2018</b>

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-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 The operator shall:
- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
  - (b) take appropriate measures to ensure the efficiency of energy generation and the permitted installation is maximised;
  - (c) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
  - (d) 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.

## **1.5 Multiple operator installations**

- 1.5.1 Where the operator notifies Natural Resources Wales under condition 4.3.1 (a) or 4.3.1 (c), the operator shall also notify without delay the other operator(s) of the installation of the same information.
- 1.5.2 Notwithstanding the requirements of EPR/BL5636IF issued to Cambrian Stone Limited, EPR/BP3635MR issued to Harsco Metals Group Limited, EPR/AB3192HQ issued to Industrial Chemicals Ltd and EPR/AB3595FF issued to Runtech Limited, the Operator (Tata Steel UK Limited) shall take responsibility for investigating all complaints made against the installation in accordance with condition 1.1, whether directly or indirectly, for the purpose of establishing the cause of the complaint and establishing any actions necessary to prevent a re-occurrence, unless otherwise agreed in writing by Natural Resources Wales.

# **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”).
- 2.1.2 For the following activities referenced in schedule 1, table S1.1 (5.4 A(1)(b)(iii)) Waste authorised by this permit shall be clearly distinguished from any other waste on the site and be treated in line with the relevant protocols as described in table S1.2 to that schedule.

## **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 in schedule 7 to this permit.
- 2.2.2 The activities described in schedule 1, table S1.1 (5.4 A(1)(b)(iii)) shall not extend beyond the land described by a dashed orange line on the site plan in 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 For the following activities referenced in schedule 1, table S1.1: LCP 73, LCP 337, LCP 338, LCP 339, LCP 340, LCP 425 and LCP 426. Without prejudice to condition 2.3.1 (a), the activities shall be operated in accordance with the “IED Compliance Protocol for non-ESI Large Combustion Plant” revision 1 dated December 2015 or any later version unless otherwise agreed in writing by Natural Resources Wales.
- 2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.4 For the following activities referenced in schedule 1, table S1.1: LCP 73, LCP 337, LCP 338, LCP 339, LCP 340, LCP 425 and LCP 426. The end of the start up period and the start of the shutdown period shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.5.
- 2.3.5 For the following activities referenced in schedule 1, table S1.1: LCP 425 and LCP 426. The following conditions apply where there is a malfunction or breakdown of any abatement equipment:
- Unless otherwise agreed in writing by Natural Resources Wales:
- (i) 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;
  - (ii) the cumulative duration of breakdown in any 12-month period shall not exceed 120 hours; and
  - (iii) the cumulative duration of malfunction in any 12-month period shall not exceed 120 hours.
- 2.3.6 Waste shall only be accepted if:
- (a) it is of a type and quantity listed in schedule 2 tables S2.2 and S2.3; and
  - (b) it conforms to the description in the documentation supplied by the producer and holder.

- 2.3.7 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.
- 2.3.8 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 Hazardous waste storage and treatment**

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

## **2.5 Improvement programme**

- 2.5.1 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.
- 2.5.2 Except in the case of an improvement which consists only of a submission to Natural Resources Wales, the operator shall notify Natural Resources Wales within 14 days of completion of each improvement.

## **2.6 Pre-operational conditions**

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

# **3 Emissions and monitoring**

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

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2, S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9A and S3.9B.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 The emission values from emission point(s) A68 and A69 measured during periods of abatement equipment malfunction and breakdown shall be disregarded for the purposes of compliance with Tables S3.7 emission limit values.
- 3.1.4 Where a substance is specified in schedule 3 tables S3.8 and S3.9A 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.
- 3.1.5 Total annual emissions from the LCP emission points set out in schedule 3 tables S3.1, S3.2, S3.3, S3.4, S3.5, S3.6, S3.7, and S3.8 of a substance listed in schedule 3 table S3.9A and S3.9B shall not exceed the relevant limit in table S3.9A and S3.9B.

- 3.1.6 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.
- 3.1.7 The annual availability of the coke side arrestment system used when coke is pushed out of the coke ovens shall be at least a total of 94% availability for all outages (planned and unplanned) and at least 98% availability for unplanned outages only. [The availability is calculated on the number of ovens pushed with abatement divided by the total number of ovens pushed in a calendar year.]

## **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 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 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.
- 3.3.2 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.

## **3.4 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 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.

- 3.4.2 The operator shall:
- (a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to 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.

### **3.5 Monitoring**

- 3.5.1 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, S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9A and S3.9B; and
  - (b) process monitoring specified in table S3.10.
- 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 Natural Resources Wales.
- 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, S3.2, S3.3, S3.4, S3.5, S3.6, S3.7, S3.8, S3.9A and S3.9B unless otherwise agreed in writing by Natural Resources Wales.

### **3.6 Monitoring for the purposes of the Industrial Emissions Directive Chapter III**

- 3.6.1 All monitoring of Large Combustion Plant (LCP) required by this permit shall be carried out in accordance with the provisions of Annex V, Part 3 of the Industrial Emissions Directive.
- 3.6.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in condition 3.6.7, the operator shall:
- (a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to Natural Resources Wales 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 proposals.
- 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 Natural Resources Wales 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 Natural Resources Wales.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to Natural Resources Wales in writing, within 28 days of the completion of the check.
- 3.6.7 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3, table S3.7; the Continuous Emission Monitors shall be used such that:
- (a) for the continuous measurement systems fitted to the LCP release points defined in Table S4.1 the validated hourly, monthly and daily averages shall be determined from the measured valid hourly average values after having subtracted the value of the 95% confidence interval;
  - (b) the 95% confidence interval for nitrogen oxides and sulphur dioxide of a single measured result shall be taken to be 20%;
  - (c) the 95% confidence interval for dust releases of a single measured result shall be taken to be 30%;
  - (d) the 95% confidence interval for carbon monoxide releases of a single measured result shall be taken to be 10%;
  - (e) 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; and
  - (f) any day, in which more than three hourly average values are invalid shall be invalidated.

## 3.7 Air Quality Management Plan

- 3.7.1 The activities shall be operated in accordance with the Air Quality Management Plan dated 10<sup>th</sup> December 2013 (or any subsequent revision to this plan agreed in writing with Natural Resources Wales). The Air Quality Management Plan shall incorporate the approved Emissions Management Plan prepared in accordance with condition 3.2.1 and 3.2.2 (or any subsequent revision to this plan agreed in writing with Natural Resources Wales). The Air Quality Management Plan shall also include, but not be limited to, the following:
- i. procedures for taking account of weather forecasting to plan and if necessary change the site operation to reduce the risk of making a significant contribution to any daily average concentration of PM<sub>10</sub> that exceeds 50 µg/m<sup>3</sup> recorded at the AURN monitor in the Port Talbot Air Quality Management Area (AQMA);
  - ii. a plan of the actions to be taken when there is the risk of making a significant contribution to any daily average concentration of PM<sub>10</sub> that exceeds 50 µg/m<sup>3</sup> recorded at the AURN monitor in the Port Talbot AQMA;
  - iii. a methodology to investigate and record the site activities that were happening when any daily average concentration of PM<sub>10</sub> exceeded 50 µg/m<sup>3</sup> recorded at the AURN monitor in the Port Talbot AQMA, and to determine if they contributed to the exceedance, and
  - iv. reporting in writing to Natural Resources Wales the outcome of any investigation under iii above including any lessons learnt and actions that need to be taken to reduce the risk of making a significant contribution to any daily average concentration of PM<sub>10</sub> that exceeds 50 µg/m<sup>3</sup> recorded at the AURN monitor in the Port Talbot AQMA. Access to the on-site monitoring information used to inform any investigation under iii above should be made available to Natural Resources Wales upon written request.
- 3.7.2 The Operator shall, unless otherwise agreed in writing, implement the approved Air Quality Management Plan from the date of approval by Natural Resources Wales.
- 3.7.3 The Operator shall conduct all its activities at the Installation in accordance with condition 2.1.1 and the approved Air Quality Management Plan or any revision to it approved by Natural Resources Wales.
- 3.7.4 The Air Quality Management Plan shall be reviewed by the Operator on an annual basis and its continued applicability and effectiveness ensured by means of a rolling annual audit programme and an appropriate corrective and preventative action system. The audit programme should consider whether there are additional appropriate measures that could be taken to prevent or minimise airborne particulates.

## 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 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.
- 4.2.3 A report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31 January (or other date agreed in writing by Natural Resources Wales) each year. The report(s) shall include as a minimum:
- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
  - (b) the annual production /treatment data set out in schedule 4 table S4.2; and
  - (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.
- 4.2.4 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.

- 4.2.6 Within 10 days of the notification of malfunction or breakdown the operator shall submit an Air Quality Risk Assessment as outlined in the IED Compliance Protocol (condition 2.3.2).
- 4.2.7 For the following activities referenced in schedule 1, table S1.1: LCP90, LCP91, LCP92 and LCP93. Unless otherwise agreed in writing with Natural Resources Wales, within 1 month of the end of each quarter, the operator shall submit to the TNP Register and Natural Resources Wales using the form IED RTA1, listed in table S4.4, the information specified on the form relating to the site's mass emissions.
- 4.2.8 For the following activities referenced in schedule 1, table S1.1: LCP337, LCP338, LCP339, LCP340, LCP73, LCP425 and LCP426. Unless otherwise agreed in writing with Natural Resources Wales, within 1 month of the end of each year, the operator shall submit to Natural Resources Wales using the form IED RTA1 and form IED AR1 listed in table S4.4, the information specified on the form relating to the site's mass emissions.

### 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.
- (d) In the event of any malfunction or breakdown of abatement equipment relating to condition 2.3.5, the operator shall notify Natural Resources Wales within 48 hours unless notification has already been made under (a) to (c) above.
- 4.3.2 Any information provided under condition 4.3.1 where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Where Natural Resources Wales has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform Natural Resources Wales when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to Natural Resources Wales at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 Natural Resources Wales shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
- Where the operator is a registered company:
- (a) any change in the operator's trading name, registered name or registered office address; and
  - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

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

- (a) any change in the operator's name or address; and
- (b) any steps taken with a view to the dissolution of the operator.

In any other case:

- (a) the death of any of the named operators (where the operator consists of more than one named individual);
- (b) any change in the operator's name(s) or address(es); and
- (c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

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

- (a) Natural Resources Wales shall be notified at least 14 days before making the change; and
- (b) the notification shall contain a description of the proposed change in operation.

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

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

- (a) a decision by the Secretary of State not to re-certify the agreement;
- (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
- (c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.3.8 The operator shall inform Natural Resources Wales 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 and WFD Annex I and II operations	Limits of specified activity and waste types
1.1 A(1)(a) Burning any fuel in an appliance with a rated thermal input of 50 or more megawatts.	<p>Power Station boilers (A50, A51, A52A, A52B, A53, A62, A68 and A69)</p> <p>LCP 73 (A62); LCP 337 (A50) (TNP LCP90); LCP 338 (A53); (TNP LCP91) LCP 339 (A51); (TNP LCP 92) LCP 340 (A52A &amp; A52B); (TNP LCP93) LCP 425 (A68) LCP 426 (A69)</p>	<p>Generating power (steam and electricity) from indigenous fuels (Blast Furnace Gas [BFG], Basic Oxygen Steelmaking Gas [BOSG] &amp; Coke Oven Gas [COG]) as well as natural gas and heavy fuel oil.</p> <p>During the period of time between the dates given in response to IC11b) and IC11c) Boilers 8 (A68) and 9 (A69) shall not be operated concurrently.</p> <p>After the dates given in response to IC12, Service Boilers 4 and 5 (A50), Boiler 5 (Margam A) (A51) and Mitchell Boiler (Margam B) (A53) shall not be operated.</p> <p>From receipt of raw materials, to discharge of exhaust gases, and the generation of electricity.</p>
	Reheat Furnaces A34A and A34B	2 reheat furnaces - Gaseous fuels and reheating slabs ready for hot rolling
	Stoves A6 and A7	Blast furnace stoves servicing blast furnace 4(A6) and 5(A7)
1.2 A(1)(a) Refining gas where this is likely to involve the use of 1000 or more tonnes of gas in any 12-month period	Coke making	2 batteries of ovens for converting coal into coke and the treatment of the coke oven gas and by-products
2.1 A(1)(a) Roasting or sintering metal ore, including sulphide ore, or any mixture of iron ore with or without other materials	Sintering	Preparing iron ore, recycled iron oxides and associated raw materials to produce sinter
2.1 A(1)(b) Producing, melting or refining iron or steel or any ferrous alloy, including continuous casting	<p>2 Blast Furnace</p> <p>2 BOS Vessels / Secondary Steelmaking</p> <p>3 Continuous Casting machines</p>	<p>Converting sinter, iron ore, coal and coke into liquid iron and the conversion of iron and iron scrap into steel, including any secondary treatments. Casting steel into slabs for sale or for further processing into rolled products</p>
2.1 A(1)(c) Processing ferrous metals and their alloys by using hot-rolling mills with a production capacity of more than 20 tonnes of crude steel per hour	Hot Rolling Mill	Rolling hot slabs into rolled products for sale or further processing

**Table S1.1 activities**

<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>
2.1 A(1)(d) Loading, unloading or otherwise handling or storing more than 500,000 tonnes in total in any 12-month period of iron ore, except in the course of mining operations, or burnt pyrites.	Iron ore storage and handling	The receipt, storage and transfer of iron ore and associated raw materials (includes unloading)
2.1 B (c) Desulphurising iron, steel or any ferrous alloy	Desulphurising iron, steel or any ferrous alloy.	Receipt of molten iron to the despatch of molten desulphurised iron.
2.3 A (1) (a) Surface treating metals and plastic materials using an electrolytic or chemical process where the aggregated volume of the treatment vats is more than 30m <sup>3</sup>	Pickling line	Hydrochloric acid removal of ferrous oxide scale from hot rolled coil prior to cold rolling
5.3 A(1)(a)(i) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving biological treatment	Aqueous Effluent Treatment. Coke Oven effluent	Collecting, treating and separation of the aqueous effluent produced by the installation
5.3 A(1)(a) (ii) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment	Aqueous Effluent Treatment	Collecting, treating and separation of the aqueous effluent produced by the installation
3.5 B (b)(iii) Loading or unloading petroleum coke, coal, coke or any other coal product except unloading on a retail sale	Mineral activity	Loading/unloading coal and coke - receiving, storing and transferring coal and coke and associated raw materials

**Table S1.1 activities**

Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
5.4 A(1)(b)(iii) Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day involving the treatment of slags and ashes	<p>HAA Waste Transfer Station with Treatment</p> <p><b>R13:</b> Storage of waste pending any of the operations numbered R3 to R5 (excluding temporary storage, pending collection, on the site where the waste is produced)</p> <p><b>R3:</b> Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)</p> <p><b>R4:</b> Recycling/reclamation of metals and metal compounds</p> <p><b>R5:</b> Recycling/reclamation of other inorganic materials</p>	<p>From receipt of materials to despatch of products compliant with the relevant quality protocol.</p> <p>Treatment of listed wastes consisting only of sorting, separation, screening, crushing and blending of waste for recycling or recovery as aggregate.</p> <p>Secure storage of listed wastes pending treatment.</p> <p>Storage of all waste types at the HAA shall not exceed 300,000 tonnes in total at any one time.</p> <p>No more than 350,000 tonnes of waste shall be treated per year. Where disposal is required, this will be undertaken in accordance with Duty of Care and legal requirements.</p> <p>Wastes having any of the following characteristics shall not be accepted</p> <ul style="list-style-type: none"> <li>- Consisting solely of dusts, powders or loose fibres; and</li> <li>- Wastes that are in a form that is either sludge, slurry or liquid</li> </ul>

Waste types as specified in Table S2.3

**Directly Associated Activity**

CAPL (continuous annealing plant)	Thermal treatment, annealing, of rolled products
Cold rolling	Further rolling of hot coil into lighter gauge cold rolled products for sale or further processing
Storage of intermediate or waste products	Collecting, storing and transport of intermediate and waste products (e.g. reverts and waste oil)

**Table S1.1 activities**

Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
HAA Waste Transfer Station with Treatment (non-slags and ashes waste types as specified in Table S2.4).	<p>Recovery or a mix of recovery and disposal of non-hazardous waste involving the treatment of wastes specified in Table S2.4 for recovery as a soil, soil substitute or aggregate.</p> <p><b>R13:</b> Storage of waste pending any of the operations numbered R3 to R5 (excluding temporary storage, pending collection, on the site where the waste is produced)</p> <p><b>R3:</b> Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)</p> <p><b>R4:</b> Recycling/reclamation of metals and metal compounds</p> <p><b>R5:</b> Recycling/reclamation of other inorganic materials</p>	<p>From receipt of materials to despatch of products compliant with the relevant quality protocol.</p> <p>Treatment of listed wastes consisting only of sorting, separation, screening, crushing and blending of waste.</p> <p>Secure storage of listed wastes pending treatment.</p> <p>Storage of all waste types at the HAA shall not exceed 300,000 tonnes in total at any one time.</p> <p>No more than 350,000 tonnes of waste shall be treated per year. Where disposal is required, this will be undertaken in accordance with Duty of Care and legal requirements.</p> <p>Wastes having any of the following characteristics shall not be accepted</p> <ul style="list-style-type: none"> <li>- Consisting solely of dusts, powders or loose fibres; and</li> <li>- Wastes that are in a form that is either sludge, slurry or liquid</li> </ul>
Yard 0	Waste processing activity involving treatment of iron-rich wastes specified in Table S2.5 for recycling within the steel making process.	<p>Waste types as specified in Table S2.4</p> <p>From receipt of materials to despatch of pellets for recycling within the installation.</p> <p>Treatment of listed wastes consisting only of blending and pelletising the waste.</p> <p>Secure storage of listed wastes pending treatment.</p> <p>Storage of wastes at Yard Zero shall not exceed 25,000 tonnes in total at any one time.</p> <p>No more than 60,000 tonnes of waste shall be treated per year. Where disposal is required, this will be undertaken in accordance with Duty of Care and legal requirements.</p> <p>Non-hazardous waste types only</p> <p>Waste Types as specified in Table S2.5</p>

**Table S1.2 Operating techniques**

<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Operating techniques	Operating techniques have been consolidated in a separate document referenced ' <i>Port Talbot Steelworks operating techniques</i> '.	20/04/15
Regulation 60 response	Response to the notice under Regulation 60 of The Environmental Permitting (England and Wales) Regulations 2010 detailing compliance with the best available techniques as described in BAT conclusions under Directive 2010/75/EU of the European Parliament and of the Council <i>on industrial emissions for iron and steel production</i> .	27/09/13
Regulation 60 response – additional information	Further information in response to the notice under Regulation 60 of The Environmental Permitting (England and Wales) Regulations 2010.	30/05/14
Application	Operating techniques as described in application report reference 'The Tata Steel Port Talbot Steelworks (Power Generation Enhancement) Environmental Permit BL7108IM Variation Application Report' (Reference 47073873) in response to section 3a – technical standards, Part B of the application form.	05/06/15
Variation application EPR/BL7108IM/V016	The original Operating Techniques document received on 20/04/15 has been updated (to reflect the addition of the HAA and Yard 0) and consolidated in a separate document referenced "Port Talbot Steelworks Operating Techniques" (v2).	31/05/18

**Table S1.3 Improvement programme requirements**

<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC 1	<p>The operator shall submit, for approval by Natural Resources Wales, a report setting out progress to achieving the BAT conclusion AELs where BAT is currently not achieved, but will be achieved by March 8<sup>th</sup> 2016. The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> <li>1) Current performance against the BATc AEL.</li> <li>2) Methodology for reaching the AELs.</li> <li>3) Associated targets / timelines for reaching compliance by 8<sup>th</sup> March 2016.</li> </ol> <p>The report shall address the following BATc: 10, 11, 14, 15, 16, 20, 25, 32, 56, 59 (in relation to A42, A43 and A44), 60, 67, 78, 81.</p>	Progress reports to be submitted quarterly

**Table S1.3 Improvement programme requirements**

Reference	Requirement	Date
IC 2	<p>The operator shall submit, for approval by Natural Resources Wales, a report setting out progress to achieving the BAT conclusion AELs where a derogation has been applied for. The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> <li>1) Current performance against the BATc AEL.</li> <li>2) Methodology for reaching the AELs.</li> <li>3) Associated targets / timelines for reaching compliance by the dates specified in the Annex to this permit.</li> </ol> <p>The report shall address the following BATc: 26, 48 and 49.</p>	Progress reports to be submitted quarterly
IC3	The Operator shall propose a methodology for assessing visible emissions from the coke oven batteries. The methodology will be equivalent with the methods identified in BATc 44 and 46.	Complete
IC4	The operator shall review the site conditioning report and site protection monitoring plan to ensure Article 22 of the Industrial Emissions Directive is complied with. Please submit the information to NRW in the format detailed in the 'European Commission Communication on Baseline reports (2014/C 136/03)'	Within 1 year of permit issue
IC6	For emission points A51, A53 and A62 the Operator shall submit for written approval by NRW emission limit values in accordance with Article 30 (Emission Limit Values) of the Industrial Emissions Directive post 30 <sup>th</sup> June 2020.	Complete
IC7	The Operator shall submit to NRW, for written approval, the proposed location of W6 and the methodology for establishing the background concentration of suspended solids for W9.	Complete
IC8	The Operator shall provide a written report assessing the utilisation of Coke Oven Gas post 2018 to determine what limits are achievable for the emission points A34A and A34B.	Complete
IC9	The Operator shall submit, for approval by NRW, proposed emission limit values for A66 and any associated Air Quality Assessment to assess the potential impact from an increase in Emission Limit Values.	Complete
IC10 a)	The Operator shall review the noise sources at the site, including alarm noises, in line with BAT for approval by NRW. The initial report will provide an overview of compliance with BAT and any timetables for bringing the noise sources in line with BAT.	Complete
b)	The Operator shall implement the submitted agreed report in IC10a.	Within 9 months of 10a being approved

**Table S1.3 Improvement programme requirements**

Reference	Requirement	Date
IC11	In relation to the upgrade of the internal power generation facility (Power Station) the Operator shall inform Natural Resources Wales' Area Office of the date of commencement of each of the following activities as listed in Appendix C of variation application report 'The Tata Steel Port Talbot Steelworks (Power Generation Enhancement) Environmental Permit BL7108IM Variation Application Report' (Reference 47073873):	3 months before commencement of activity.
	a) Preparatory works	
	b) Commissioning and Start-up	
	c) Preparatory work for decommissioning of the old assets	
	d) Turbo Alternator 2 Decommissioning	
	e) Turbo Alternator 3 Decommissioning	
	f) Boiler 5 and associated stack decommissioning	
	g) Mitchell Boiler and associated stack decommissioning	
	h) Turbo Alternator B1 Decommissioning	
	i) Service Boilers 4 & 5 and associated Stacks decommissioning	
IC12	In relation to the upgrade of the internal power generation facility (Power Station) the Operator shall inform Natural Resources Wales of the date of cessation of operation of the following: a) Service Boilers 4 and 5 (A50) (LCP 337); b) Boiler 5 (Margam A) (A51) (LCP 339); and c) Mitchell Boiler (Margam B) (A53) (LCP 338). To enable Natural Resources Wales to inform Defra and / or the Environment Agency of the need to modify the Transitional National Plan.	On cessation of use of each boiler
IC13	For LCP 73, LCP 337, LCP 338, LCP 339 and LCP 340 emissions of particulate matter, sulphur dioxide and oxides of nitrogen for the year 01/01/2015 to 31/12/2015 shall be submitted to Natural Resources Wales using form RTA 1 and also emailed to the National Emission Reduction Plan (NERP) Registry.	28/01/16
IC14	In relation to the upgrade of the internal power generation facility (Power Station) the Operator shall submit for approval to Natural Resources Wales a commissioning plan for Boilers 8 (A68) (LCP 425) and 9 (A69) (LCP 426), and a decommissioning plan for Service Boilers 4 and 5 (A50) (LCP 337), Boiler 5 (Margam A) (A51) (LCP 339) and Mitchell Boiler (Margam B) (A53) (LCP 338) to demonstrate that Boilers 8 and 9 will not operate concurrently whilst Service Boilers 4 and 5, Boiler 5 and Mitchell Boiler are still operating.	6 months before the commencement of Activity b) as listed in IC11
IC 15	The operator shall provide a written report to Natural Resources Wales that assesses the influence of the following factors: a) molten iron chemistry; b) molten iron viscosity; c) torpedo temperature and standing time; d) torpedo size; and e) any other relevant factors on the potential for environmental emissions from molten iron pouring and plating. The relationship between torpedo pouring angle and the duration of pouring for different sized torpedoes shall be explored as part of the report.	Complete

**Table S1.3 Improvement programme requirements**

Reference	Requirement	Date
IC16	The Operator shall undertake a review of the wastes described in Schedule 2 Table 2.2 to clarify which of the wastes are accepted into a scheduled activity within the installation and which are produced within the installation and subsequently exported out of the permitted boundary with a view to consolidating table 2.2 to describe only wastes accepted into a scheduled activity and remove any exported from the installation. The assessment shall be submitted for approval by NRW in the form of a written report.	30/10/2018
IC17	The Operator shall conduct an assessment of potential options to safely achieve sampling of the exhaust from the BOS Off-gas Superheater (emission point A66). . The assessment shall be submitted for approval by NRW in the form of a written report.	31/12/2018

**Table S1.4A Pre-operational measures**

Reference	Operation	Pre-Operational Measures
PO1	Upgrade of internal power generation facility (Power Station)	The Operator shall provide Natural Resources Wales with detailed designs for the new Boilers 8 (LCP 425) and 9 (LCP 426) and associated plant and infrastructure for approval by Natural Resources Wales <b>six months before</b> commencement of 'Commissioning and Start-up' as described in Appendix C of variation application report 'The Tata Steel Port Talbot Steelworks (Power Generation Enhancement) Environmental Permit BL7108IM Variation Application Report' (Reference 47073873).
PO2	Upgrade of internal power generation facility (Power Station)	The Operator shall provide details of Minimum Start-up Load and Minimum Shutdown Loads for Boilers 8 (LCP 425) and 9 (LCP 426) for approval by Natural Resources Wales <b>three months before</b> "Commissioning and Start-up" as described in Appendix C of variation application report 'The Tata Steel Port Talbot Steelworks (Power Generation Enhancement) Environmental Permit BL7108IM Variation Application Report' (Reference 47073873). This submission must be made with reference to the Implementing Decision 2012/249/EU and must include justification of the figures as set out in Article 6 of Implementing Decision 2012/249/EU.

**Table S1.5 Start-up and Shut-down thresholds**

Emission Point and Unit Reference	"Minimum start up load"	"Minimum shut-down load"
	Load in MW and as percent of rated power output (%) and/or steam/hot water flow rate in xx/xx and as percent of rated thermal output (%) and/or when two of the criteria listed below for the LCP or unit have been met.	Load in MW and as percent of rated power output (%) and/or steam/hot water flow rate in xx/xx and as percent of rated thermal output (%) and/or when two of the criteria listed below for the LCP or unit have been met.
A68 (LCP 425)	Limit to be agreed on completion of PO2	Limit to be agreed on completion of PO2
A69 (LCP 426)	Limit to be agreed on completion of PO2	Limit to be agreed on completion of PO2

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

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

Raw materials and fuel description	Specification <sup>(a)</sup>
Heavy fuel oil (HFO) - Boilers	Not exceeding 1.0% w/w sulphur content
Blended coal for coke ovens	Maximum sulphur content 0.75% W/W <sup>(b)</sup>
Blended reverts - Sinter plant	Maximum oil content 1.0% W/W

a) Any sample taken and analysed in accordance with appropriate British Standards when considered together with a sampling and estimation protocol to be agreed with Natural Resources Wales shall not exceed this limit

b) On completion of BAT conclusion 48 this limit will no longer apply

**Table S2.2 Permitted waste types and quantities for activities 1.1 A(1)(a), 1.2 A(1)(a), 2.1 A(1)(a), 2.1 A(1)(b), 2.1 A(1)(c), 2.1 A(1)(d), 2.1 B(c), 2.3 A(1)(a), 5.3 A(1)(a)(i), 5.3 A(1)(a)(ii) and 3.5 B(b)(iii)**

Waste code	Description
<b>05</b>	<b>WASTES FROM PETROLEUM REFINING, NATURAL GAS PURIFICATION AND THE PYROLYTIC TREATMENT OF COAL</b>
<b>05 06</b>	<b>Wastes from the pyrolytic treatment of coal</b>
05 06 03*	Other tars
<b>06</b>	<b>WASTES FROM INORGANIC CHEMICAL PROCESSES</b>
<b>06 02</b>	<b>wastes from the MFSU of bases</b>
06 02 01*	calcium hydroxide
<b>10</b>	<b>WASTES FROM THERMAL PROCESSES</b>
<b>10 01</b>	<b>wastes from power stations and other combustion plants (except 19)</b>
10 01 01	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)
10 01 02	coal fly ash
10 01 03	fly ash from peat and untreated wood
10 01 04*	oil fly ash and boiler dust
10 01 05	calcium-based reaction wastes from flue-gas desulphurisation in solid form
10 01 07	calcium-based reaction wastes from flue-gas desulphurisation in sludge form
10 01 09*	sulphuric acid
10 01 13*	fly ash from emulsified hydrocarbons used as fuel
10 01 14*	bottom ash, slag and boiler dust from co-incineration containing dangerous substances
10 01 15	bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14
10 01 16*	fly ash from co-incineration containing dangerous substances
10 01 17	fly ash from co-incineration other than those mentioned in 10 01 16
10 01 18*	wastes from gas cleaning containing dangerous substances
10 01 19	wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18
10 01 20*	sludges from on-site effluent treatment containing dangerous substances
10 01 21	sludges from on-site effluent treatment other than those mentioned in 10 01 20
10 01 22*	aqueous sludges from boiler cleansing containing dangerous substances
10 01 23	aqueous sludges from boiler cleansing other than those mentioned in 10 01 22
10 01 24	sands from fluidised beds
10 01 25	wastes from fuel storage and preparation of coal-fired power plants

**Table S2.2 Permitted waste types and quantities for activities 1.1 A(1)(a), 1.2 A(1)(a), 2.1 A(1)(a), 2.1 A(1)(b), 2.1 A(1)(c), 2.1 A(1)(d), 2.1 B(c), 2.3 A(1)(a), 5.3 A(1)(a)(i), 5.3 A(1)(a)(ii) and 3.5 B(b)(iii)**

<b>Waste code</b>	<b>Description</b>
10 01 26	wastes from cooling-water treatment
10 01 99	wastes not otherwise specified
<b>10 02</b>	<b>wastes from the iron and steel industry</b>
10 02 01	wastes from the processing of slag
10 02 02	unprocessed slag
10 02 07*	solid wastes from gas treatment containing dangerous substances
10 02 08	solid wastes from gas treatment other than those mentioned in 10 02 07
10 02 10	mill scales
10 02 11*	wastes from cooling-water treatment containing oil
10 02 12	wastes from cooling-water treatment other than those mentioned in 10 02 11
10 02 13*	sludges and filter cakes from gas treatment containing dangerous substances
10 02 14	sludges and filter cakes from gas treatment other than those mentioned in 10 02 13
10 02 15	other sludges and filter cakes
10 02 99	wastes not otherwise specified
<b>10 03</b>	<b>wastes from aluminium thermal metallurgy</b>
10 03 02	anode scraps
10 03 04*	primary production slags
10 03 05	waste alumina
10 03 08*	salt slags from secondary production
10 03 09*	black drosses from secondary production
10 03 15*	skimmings that are flammable or emit, upon contact with water, flammable gases in dangerous quantities
10 03 16	skimmings other than those mentioned in 10 03 15
10 03 17*	tar-containing wastes from anode manufacture
10 03 18	carbon-containing wastes from anode manufacture other than those mentioned in 10 03 17
10 03 19*	flue-gas dust containing dangerous substances
10 03 20	flue-gas dust other than those mentioned in 10 03 19
10 03 21*	other particulates and dust (including ball-mill dust) containing dangerous substances
10 03 22	other particulates and dust (including ball-mill dust) other than those mentioned in 10 03 21
10 03 23*	solid wastes from gas treatment containing dangerous substances
10 03 24	solid wastes from gas treatment other than those mentioned in 10 03 23
10 03 25*	sludges and filter cakes from gas treatment containing dangerous substances
10 03 26	sludges and filter cakes from gas treatment other than those mentioned in 10 03 25
10 03 27*	wastes from cooling-water treatment containing oil
10 03 28	wastes from cooling-water treatment other than those mentioned in 10 03 27
10 03 29*	wastes from treatment of salt slags and black drosses containing dangerous substances
10 03 30	wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29
10 03 99	wastes not otherwise specified
<b>10 04</b>	<b>wastes from lead thermal metallurgy</b>
10 04 01*	slags from primary and secondary production
10 04 02*	dross and skimmings from primary and secondary production

**Table S2.2 Permitted waste types and quantities for activities 1.1 A(1)(a), 1.2 A(1)(a), 2.1 A(1)(a), 2.1 A(1)(b), 2.1 A(1)(c), 2.1 A(1)(d), 2.1 B(c), 2.3 A(1)(a), 5.3 A(1)(a)(i), 5.3 A(1)(a)(ii) and 3.5 B(b)(iii)**

<b>Waste code</b>	<b>Description</b>
10 04 03*	calcium arsenate
10 04 04*	flue-gas dust
10 04 05*	other particulates and dust
10 04 06*	solid wastes from gas treatment
10 04 07*	sludges and filter cakes from gas treatment
10 04 09*	wastes from cooling-water treatment containing oil
10 04 10	wastes from cooling-water treatment other than those mentioned in 10 04 09
10 04 99	wastes not otherwise specified
<b>10 05</b>	<b>wastes from zinc thermal metallurgy</b>
10 05 01	slags from primary and secondary production
10 05 03*	flue-gas dust
10 05 04	other particulates and dust
10 05 05*	solid waste from gas treatment
10 05 06*	sludges and filter cakes from gas treatment
10 05 08*	wastes from cooling-water treatment containing oil
10 05 09	wastes from cooling-water treatment other than those mentioned in 10 05 08
10 05 10*	dross and skimmings that are flammable or emit, upon contact with water, flammable gases in dangerous quantities
10 05 11	dross and skimmings other than those mentioned in 10 05 10
10 05 99	wastes not otherwise specified
<b>10 06</b>	<b>wastes from copper thermal metallurgy</b>
10 06 01	slags from primary and secondary production
10 06 02	dross and skimmings from primary and secondary production
10 06 03*	flue-gas dust
10 06 04	other particulates and dust
10 06 06*	solid wastes from gas treatment
10 06 07*	sludges and filter cakes from gas treatment
10 06 09*	wastes from cooling-water treatment containing oil
10 06 10	wastes from cooling-water treatment other than those mentioned in 10 06 09
10 06 99	wastes not otherwise specified
<b>10 07</b>	<b>wastes from silver, gold and platinum thermal metallurgy</b>
10 07 01	slags from primary and secondary production
10 07 02	dross and skimmings from primary and secondary production
10 07 03	solid wastes from gas treatment
10 07 04	other particulates and dust
10 07 05	sludges and filter cakes from gas treatment
10 07 07*	wastes from cooling-water treatment containing oil
10 07 08	wastes from cooling-water treatment other than those mentioned in 10 07 07
10 07 99	wastes not otherwise specified
<b>10 08</b>	<b>wastes from other non-ferrous thermal metallurgy</b>
10 08 04	particulates and dust
10 08 08*	salt slag from primary and secondary production
10 08 09	other slags
10 08 10*	dross and skimmings that are flammable or emit, upon contact with water, flammable gases in dangerous quantities
10 08 11	dross and skimmings other than those mentioned in 10 08 10
10 08 12*	tar-containing wastes from anode manufacture

**Table S2.2 Permitted waste types and quantities for activities 1.1 A(1)(a), 1.2 A(1)(a), 2.1 A(1)(a), 2.1 A(1)(b), 2.1 A(1)(c), 2.1 A(1)(d), 2.1 B(c), 2.3 A(1)(a), 5.3 A(1)(a)(i), 5.3 A(1)(a)(ii) and 3.5 B(b)(iii)**

<b>Waste code</b>	<b>Description</b>
10 08 13	carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12
10 08 14	anode scrap
10 08 15*	flue-gas dust containing dangerous substances
10 08 16	flue-gas dust other than those mentioned in 10 08 15
10 08 17*	sludges and filter cakes from flue-gas treatment containing dangerous substances
10 08 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17
10 08 19*	wastes from cooling-water treatment containing oil
10 08 20	wastes from cooling-water treatment other than those mentioned in 10 08 19
10 08 99	wastes not otherwise specified
<b>10 09</b>	<b>wastes from casting of ferrous pieces</b>
10 09 03	furnace slag
10 09 05*	casting cores and moulds which have not undergone pouring containing dangerous substances
10 09 06	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05
10 09 07*	casting cores and moulds which have undergone pouring containing dangerous substances
10 09 08	casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07
10 09 09*	flue-gas dust containing dangerous substances
10 09 10	flue-gas dust other than those mentioned in 10 09 09
10 09 11*	other particulates containing dangerous substances
10 09 12	other particulates other than those mentioned in 10 09 11
10 09 13*	waste binders containing dangerous substances
10 09 14	waste binders other than those mentioned in 10 09 13
10 09 15*	waste crack-indicating agent containing dangerous substances
10 09 16	waste crack-indicating agent other than those mentioned in 10 09 15
10 09 99	wastes not otherwise specified
<b>10 10</b>	<b>wastes from casting of non-ferrous pieces</b>
10 10 03	furnace slag
10 10 05*	casting cores and moulds which have not undergone pouring, containing dangerous substances
10 10 06	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05
10 10 07*	casting cores and moulds which have undergone pouring, containing dangerous substances
10 10 08	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07
10 10 09*	flue-gas dust containing dangerous substances
10 10 10	flue-gas dust other than those mentioned in 10 10 09
10 10 11*	other particulates containing dangerous substances
10 10 12	other particulates other than those mentioned in 10 10 11
10 10 13*	waste binders containing dangerous substances
10 10 14	waste binders other than those mentioned in 10 10 13
10 10 15*	waste crack-indicating agent containing dangerous substances
10 10 16	waste crack-indicating agent other than those mentioned in 10 10 15

**Table S2.2 Permitted waste types and quantities for activities 1.1 A(1)(a), 1.2 A(1)(a), 2.1 A(1)(a), 2.1 A(1)(b), 2.1 A(1)(c), 2.1 A(1)(d), 2.1 B(c), 2.3 A(1)(a), 5.3 A(1)(a)(i), 5.3 A(1)(a)(ii) and 3.5 B(b)(iii)**

<b>Waste code</b>	<b>Description</b>
10 10 99	wastes not otherwise specified
<b>11 01</b>	<b>wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphatising, alkaline degreasing, anodising)</b>
11 01 05*	pickling acids
11 01 06*	acids not otherwise specified
11 01 07*	pickling bases
11 01 08*	phosphatising sludges
11 01 09*	sludges and filter cakes containing dangerous substances
11 01 10	sludges and filter cakes other than those mentioned in 11 01 09
11 01 11*	aqueous rinsing liquids containing dangerous substances
11 01 12	aqueous rinsing liquids other than those mentioned in 11 01 11
11 01 13*	degreasing wastes containing dangerous substances
11 01 14	degreasing wastes other than those mentioned in 11 01 13
11 01 15*	eluate and sludges from membrane systems or ion exchange systems containing dangerous substances
11 01 16*	saturated or spent ion exchange resins
11 01 98*	other wastes containing dangerous substances
11 01 99	wastes not otherwise specified
<b>11 02</b>	<b>wastes from non-ferrous hydrometallurgical processes</b>
11 02 02*	sludges from zinc hydrometallurgy (including jarosite, goethite)
11 02 03	wastes from the production of anodes for aqueous electrolytical processes
11 02 05*	wastes from copper hydrometallurgical processes containing dangerous substances
11 02 06	wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05
11 02 07*	other wastes containing dangerous substances
11 02 99	wastes not otherwise specified
<b>11 03</b>	<b>sludges and solids from tempering processes</b>
11 03 01*	wastes containing cyanide
11 03 02*	other wastes
<b>11 05</b>	<b>wastes from hot galvanising processes</b>
11 05 01	hard zinc
11 05 02	zinc ash
11 05 03*	solid wastes from gas treatment
11 05 04*	spent flux
<b>12</b>	<b>WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS</b>
<b>12 01</b>	<b>wastes from shaping and physical and mechanical surface treatment of metals and plastics</b>
12 01 13	welding wastes
12 01 17	Waste blasting material other than those mentioned in 12 01 16
12 01 18*	metal sludge containing oil
12 01 20*	spent grinding bodies and grinding materials containing dangerous substances
12 01 21	spent grinding bodies and grinding materials other than those mentioned in 12 01 20
<b>13</b>	<b>OIL WASTES AND WASTES OF LIQUID FUELS (except edible oils and those in chapters 05, 12 and 19)</b>

**Table S2.2 Permitted waste types and quantities for activities 1.1 A(1)(a), 1.2 A(1)(a), 2.1 A(1)(a), 2.1 A(1)(b), 2.1 A(1)(c), 2.1 A(1)(d), 2.1 B(c), 2.3 A(1)(a), 5.3 A(1)(a)(i), 5.3 A(1)(a)(ii) and 3.5 B(b)(iii)**

Waste code	Description
<b>13 05</b>	<b>Oil/water separator contents</b>
13 05 06*	Oil from oil/water separators
<b>15</b>	<b>WASTE PACKAGING, ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED</b>
<b>15 01</b>	<b>Packaging (including separately collected municipal packaging wastes)</b>
15 01 04	Metallic packaging
<b>17</b>	<b>CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)</b>
<b>17 04</b>	<b>Metals (including their alloys)</b>
17 04 01	copper, bronze, brass
17 04 02	aluminium
17 04 03	lead
17 04 04	zinc
17 04 05	iron and steel
17 04 06	tin
17 04 07	mixed metals
17 04 09*	metal waste contaminated with dangerous substances
17 04 10*	cables containing oil, coal tar and other dangerous substances
17 04 11	cables other than those mentioned in 17 04 10
<b>19</b>	<b>WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE</b>
<b>19 10</b>	<b>Waste from shredding of metal-containing wastes</b>
19 10 01	Iron and steel waste
19 10 02	Non-ferrous waste
<b>19 12</b>	<b>Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified.</b>
19 12 02	Ferrous metal
19 12 03	Non-ferrous metal
<b>20</b>	<b>MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS</b>
<b>20 01</b>	<b>Separately collected fractions (except 15 01)</b>
20 01 40	Metals

**Table S2.3 Permitted waste types and quantities for activity HAA 5.4 A(1)(b)(iii) (slags and ashes)**

Waste code	Description
<b>10</b>	<b>WASTES FROM THERMAL PROCESSES</b>
<b>10 02</b>	<b>Wastes from the iron and steel industry</b>
10 02 01	Waste from the processing of slag (waste from the processing of blast furnace slag/steel slag)
10 02 02	Unprocessed slag (Unprocessed blast furnace slag/steel slag)
10 02 99	Wastes not otherwise specified (slab yard refuse/iron ore refuse)

**Table S2.4 Permitted waste types and quantities for HAA Directly Associated Activity (non-slags and ashes waste)**

<b>Waste code</b>	<b>Description</b>
<b>01</b>	<b>WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS</b>
<b>01 04</b>	<b>Wastes from physical and chemical processing of non-metalliferous minerals</b>
01 04 08	Waste gravel and crushed rocks other than those mentioned in 01 04 07; may include excavations from mineral workings
01 04 09	Waste sand
<b>10</b>	<b>WASTES FROM THERMAL PROCESSES</b>
<b>10 11</b>	<b>Waste from manufacture of glass and glass products</b>
10 11 03	Waste glass-based fibrous materials (without organic binders)
<b>15</b>	<b>WASTE PACKAGING, ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED</b>
<b>15 01</b>	<b>Packaging (including separately collected municipal packaging waste)</b>
15 01 07	Glass packaging
<b>16</b>	<b>WASTES NOT OTHERWISE SPECIFIED IN THE LIST</b>
<b>16 11</b>	<b>Waste linings and refractories</b>
16 11 04	Other linings and refractories from metallurgical processes other than those mentioned in 16 11 03 (Refractory)
<b>17</b>	<b>CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)</b>
<b>17 01</b>	<b>Concrete, bricks, tiles and ceramics</b>
17 01 01	Concrete (excluding concrete slurry)
17 01 02	Bricks
17 01 03	Tiles and ceramics
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
<b>17 02</b>	<b>Wood, glass and plastic</b>
17 02 02	Glass (excluding fibreglass or glass fibre)
<b>17 03</b>	<b>Bituminous mixtures, coal tar and tarred products</b>
17 03 02	Bituminous mixtures other than those mentioned in 17 03 01
<b>17 05</b>	<b>Soil (including excavated soil from contaminated sites), stones and dredging spoil.</b>
17 05 04	Soil and stones other than those mentioned in 17 05 03 and not containing any contaminated soil or stones from contaminated sites
17 05 06	Dredging spoil other than those mentioned in 17 05 05 (only if inert aggregate from dredgings, must not contain contaminated dredgings and must not contain fines)
17 05 08	Track ballast other than those mentioned in 17 05 07
<b>17 09</b>	<b>Other construction and demolition wastes</b>
17 09 04	Mixed construction and demolition waste other than those mentioned in 17 09 01, 17 09 02 and 17 09 03 (and comprising granular material).
<b>19 12</b>	<b>Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified.</b>
19 12 05	Glass (not including glass from cathode ray tubes)
19 12 09	Minerals (for example sand, stones)

**Table S2.4 Permitted waste types and quantities for HAA Directly Associated Activity (non-slags and ashes waste)**

<b>Waste code</b>	<b>Description</b>
<b>20</b>	<b>MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPERATELY COLLECTED FRACTIONS</b>
<b>20 01</b>	<b>Separately collected fractions (except 15 01)</b>
20 01 02	Glass (must not include fibreglass)
<b>20 02</b>	<b>Garden and park wastes (including cemetery waste)</b>
20 02 02	Soil and stones (must not contain contaminated stones from garden and parks waste)

**Table S2.5 Permitted waste types and quantities for Yard Zero Directly Associated Activity**

<b>Waste code</b>	<b>Description</b>
<b>12</b>	<b>WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS</b>
<b>12 01</b>	<b>wastes from shaping and physical and mechanical surface treatment of metals and plastics</b>
12 01 02	Ferrous metal dust and particles
<b>19</b>	<b>WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE</b>
<b>19 03</b>	<b>Stabilised/solidified wastes</b>
19 03 05	Stabilised wastes other than those mentioned in 19 03 04
19 03 07	Solidified wastes other than those mentioned in 19 03 06

## Schedule 3 – Emissions and monitoring

<b>Table S3 Emission points to Air</b>			
<b>Emission point description</b>	<b>Source</b>	<b>Height (metres)</b>	<b>Location of emission point on the site plan of environmental release points (reference CAD-000000000022)</b>
Sinter plant main stack	Sinter Plant	133	A1
Sinter plant deduster stack	Sinter Plant	55	A2
Mixing and rolling drum stack	Sinter Plant	20	A3
Blast furnace 4 bell-less top	Blast Furnaces	88	A4
Blast furnace 4 bleeders	Blast Furnaces	88	A4A
Blast furnace 5 bell-less top	Blast Furnaces	84	A5
Blast furnace 5 bleeders	Blast Furnaces	84	A5A
Blast furnace 4 hot blast stoves stack	Blast Furnaces	74	A6
Blast furnace 5 hot blast stoves stack	Blast Furnaces	74	A7
BF4 casthouse fume extraction North	Blast Furnaces	32	A8A
BF4 casthouse fume extraction South	Blast Furnaces	32	A8B
BF5 casthouse fume extraction	Blast Furnaces	40	A9
Iron desulphurisation/hot metal pouring fume extraction plant stack	BOS Plant	29	A10
Hot metal Fume extraction Number 2	BOS Plant	41	A10A *
Lime plant dust extraction stack	BOS Plant	15	A11
BOS converter 1 primary gas cleaning stack	BOS Plant	70	A12 (Relocated)
BOS converter 2 primary gas cleaning stack	BOS Plant	70	A13 (Relocated)
Secondary fume extraction stack North	BOS Plant	20	A14

<b>Table S3 Emission points to Air</b>			
<b>Emission point description</b>	<b>Source</b>	<b>Height (metres)</b>	<b>Location of emission point on the site plan of environmental release points (reference CAD-000000000022)</b>
<i>Secondary fume extraction stack Centre</i>	<i>BOS Plant</i>	20	A15
<i>Secondary fume extraction stack South</i>	<i>BOS Plant</i>	20	A16
<i>RH degasser stack</i>	<i>BOS Plant</i>	33	A17
<i>RD-KTB degasser stack</i>	<i>BOS Plant</i>	51	A18
<i>Cold Mill oil mist vent</i>	<i>Cold Mill</i>	24	A19
<i>No release point has been allocated reference A20</i>			
Pickle line scrubber fume extraction	<i>Cold Mill</i>	46	A21
Stretch leveller fume extraction stack	<i>Cold Mill</i>	21	A23
<i>No release point has been allocated reference A29</i>			
Ebner furnace stack North	<i>Cold Mill</i>	31	A30
Blast furnace gas flare stack 1	<i>Energy – Distribution</i>	35	A33
Blast furnace gas Main no. 4 bleeder stack	<i>Energy – Distribution</i>	73	A33A
Blast furnace gas Main no. 5 bleeder stack	<i>Energy – Distribution</i>	73	A33B
Blast furnace gas flare stack 2	<i>Energy – Distribution</i>	54	A33C
Reheat furnace duct North	<i>Hot Mill</i>	120	A34A**
Reheat furnace duct South	<i>Hot Mill</i>	120	A34B**
Fluidised bed dryer 1 bag filter plant stack	<i>Blast Furnaces</i>	30	A37
Fluidised bed dryer 2 bag filter plant stack	<i>Blast Furnaces</i>	30	A38
Number 1 New Mill Stack (GCI)	<i>Blast Furnaces</i>	54	A39
<i>No release points have been allocated reference A40 &amp; A41</i>			

<b>Table S3 Emission points to Air</b>			
<b>Emission point description</b>	<b>Source</b>	<b>Height (metres)</b>	<b>Location of emission point on the site plan of environmental release points (reference CAD-000000000022)</b>
Silo 4 filter vent A -	-	44	A42
Silo 4 filter vent B -	-	44	A43
Silo 5 filter vent	<i>Blast Furnaces</i>	44	A44
No release point has been allocated reference A45			
CAPL furnace stack	<i>Cold Mill – CAPL</i>	57	A46
CAPL scrubber stack	<i>Cold Mill – CAPL</i>	24	A47
CAPL temper mill fume extraction stack	<i>Cold Mill – CAPL</i>	20	A48
CAPL HNX vents	<i>Cold Mill – CAPL</i>	46	A49
Service boilers 4&5 stack	<i>Energy – Generation</i>	68	A50
Boiler 5 (Margam A) stack	<i>Energy – Generation</i>	32	A51
Boiler 6 (Margam C) stack	<i>Energy – Generation</i>	121	A52A
Boiler 7 (Margam C) stack	<i>Energy – Generation</i>	121	A52B
Mitchell boiler (Margam B ) stack	<i>Energy – Generation</i>	37	A53
Morfa Coke oven batteries	<i>Coke Ovens</i>	15	A54
Morfa main stack	<i>Coke Ovens</i>	127	A55
Ministerstein (3 flues)	<i>Coke Ovens</i>	20	A56
Ammonia incinerator	<i>Coke Ovens</i>	50	A57
Secondary coal crusher stack	<i>Coke Ovens</i>	11	A58
Coke oven gas triple flare stack	<i>Coke Ovens</i>	65	A59
Quench tower (old)	<i>Coke Ovens</i>	35	A60A

<b>Table S3 Emission points to Air</b>			
<b>Emission point description</b>	<b>Source</b>	<b>Height (metres)</b>	<b>Location of emission point on the site plan of environmental release points (reference CAD-0000000000022)</b>
Quench tower (new)	<i>Coke Ovens</i>	40	A60B
Collecting main bleeders	<i>Coke Ovens</i>	30	A61
Boiler 3	<i>Energy – Generation</i>	33	A62 (SS 7698 8847)
CASOB/Desulph fume extraction plant	<i>BOS plant</i>	54	A63 *
Concaster steam vents	<i>Continuous Casting</i>	-	A64A -F
Blast furnace 4 ferrous stock house filter plant stack	<i>Blast furnaces</i>	-	A65**
BOS OG heat recovery – Super Heater	<i>Energy Generation</i>	26	A66**
Coke oven gas flare stack	<i>Coke Ovens</i>	50	A67**
Boiler 8 stack	Energy Generation	80	A68
Boiler 9 stack	Energy Generation	80	A69
<b>Area, volume or non point source releases</b>			
Iron ore stock yards	Sinter Plant	0 – circa 10	
Coal stock yards	Coke Ovens	0 – circa 20	
Sinter raw blending beds	Sinter Plant	0 – circa 23	
Rubble and pellet blending beds	Sinter Plant	0 – circa 23	
Sinter stock pile	Sinter Plant	0 – circa 23	
Lump ore screening plant	Sinter plant		
Blast furnace stock house (Hiline ferrous) furnace 4	Blast furnaces		
Blast furnace stock house (Hiline ferrous; furnace 5)	Blast furnaces		
Blast furnace stock house (Hiline coke) furnace 4	Blast furnaces		

<b>Table S3 Emission points to Air</b>			
<b>Emission point description</b>	<b>Source</b>	<b>Height (metres)</b>	<b>Location of emission point on the site plan of environmental release points (reference CAD-000000000022)</b>
Blast furnace stock house (Hiline coke; furnace 5)	Blast furnaces		
Blast furnace 4 Cyclone	Blast furnaces		
Blast furnace 5 dust catcher	Blast furnaces		
Benzole storage	Coke Ovens		
Coke ovens effluent treatments	Coke Ovens		
* - as shown on diagram 3526.00.00.29.005			
** - as shown in Figure 3 in Schedule 4 of EPR/BL7108IM/V012			

## Schedule 3(a) – Emissions and monitoring Emissions until 30<sup>th</sup> June 2020

<b>Table S3.1 Sinter plant point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
A1	Sulphur dioxide	Sinter plant (main stack)	500 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
	Specific individual polycyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6		-	Spot	6 monthly  (min interval between monitoring 2 months)	BS ISO11338
	Dioxins and furans iTEQ		0.4 ng/m <sup>3</sup>	Average of all extractive spot samples over calendar year	6 monthly	BS EN 1948: Parts 1, 2 and 3
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		500 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
	Particulate matter		40 mg/m <sup>3</sup> Note 1	Daily mean	Continuous measurement	BS EN 14181
	Mercury		0.05 mg/m <sup>3</sup>	Spot (taken over half hour)	Annual	BS EN 14385
A2	Particulate matter	Sinter plant (deduster stack)	30 mg/m <sup>3</sup> Note 2	Daily mean	Continuous measurement	BS EN 14181

**Table S3.1 Sinter plant point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
A3	-	Sinter plant (Mixing and rolling drum stack)	-	-	-	

Note 1: Limit only applied during normal operations as agreed in writing with Natural Resources Wales.

Note 2: See Annex to Conditions – Derogation under Industrial Emissions Directive

**Table S3.2 Coke Ovens point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
A54	DLCF (Door Leakage Control Factor)	Morfa coke oven batteries	10% leakage factor (90% doors no leaks)	Monthly mean	Daily	Modified US EPA Method 303 as agreed with NRW
	TLCF (Top Leakage Control Factor)		1% leakage factor (99% tops no leaks)	Monthly mean	Daily	Modified US EPA Method 303 as agreed with NRW
	Visible emissions from charging		<30 seconds per charge	Monthly mean	Daily	Modified US EPA Method 303 as agreed with NRW
A55	Visible smoke	Morfa main stack	Ringelmann 1	30 mins <sup>(note 1)</sup>	Continuous Measurement	BS2742:1969
	Sulphur dioxide		500 mg/m <sup>3</sup> <sup>(Note 2)</sup>	Hourly mean	Six monthly (minimum of 2 months between monitoring)	BS EN 14791
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		1600 mg/m <sup>3</sup> (lean) 4000 mg/m <sup>3</sup> (rich)	Hourly mean	Six monthly (minimum of 2 months between monitoring)	BS EN 14792
	Particulate matter		20 mg/m <sup>3</sup> <sup>(Note 3)</sup>	Hourly mean	Annually	BS EN 13284-1
A56	Visible smoke	Minister stein (3 flues)	No visible releases	-	-	-
	Particulate matter		20 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 13284-1
A57	Visible smoke	Ammonia incinerator	No visible releases	-	-	-

**Table S3.2 Coke Ovens point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
	Sulphur dioxide		2000 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14791
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		200 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14792
A60A	-	Quench tower (old)	-	-	-	-
A60B	Particulate matter	Quench tower (new)	25g/t	Average over sampling period	-	Mohrhauer method
A61	-	Collecting main bleeders	-	-	-	-
A67	-	Gas flare stack	-	-	-	-

Note 1: The 30 minute in any day limit does not include ovens undergoing maintenance such as physical (ceramic welding, refractory patching etc.) and/or mechanical (replacing valves, door replacement etc.) repairs.

Note 2: Only applies when the derogation for BATc 48 expires. Existing limit of 250 mg/m<sup>3</sup> (lean) and 1000 mg/m<sup>3</sup> (rich) and associated monitoring arrangements apply in the interim.

Note 3: Only applies when the derogation for BATc 48 expires. Existing limit of 100 mg/m<sup>3</sup> and associated monitoring arrangements apply in the interim.

**Table S3.3 Blast Furnace point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
<b>Blast furnace 4</b>						
A4	-	Bell-less top	-	-	-	-
A4A	-	Bleeders	-	-	-	-
A6	Sulphur dioxide	Hot blast stove stacks	200 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14791
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14792
	Particulate matter		10 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 13284-1
A8A	Particulate matter	Casthouse fume extraction North	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A8B	Particulate matter	Casthouse fume extraction South	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A65	Particulate matter	Ferrous stock house filter plant stack	10 mg/m <sup>3</sup>	Hourly mean	Annual	BS EN 13284-1
<b>Blast furnace 5</b>						
A5	-	Bell-less top	-	-	-	-
A5A	-	Bleeders	-	-	-	-
A7	Sulphur dioxide	Hot blast stove stacks	200 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14791
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14792

**Table S3.3 Blast Furnace point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
	Particulate matter		10 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 13284-1
A9	Particulate matter	Casthouse fume extraction	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
<b>Blast furnace associated emissions to air</b>						
A37	Particulate matter	Fluidised bed dryer 1 bag filter plant stack	20 mg/m <sup>3</sup>	Hourly mean	Annually	BS EN 13284-1
A38	Particulate matter	Fluidised bed dryer 2 bag filter plant stack	20 mg/m <sup>3</sup>	Hourly mean	Annually	BS EN 13284-1
A39	Sulphur dioxide	Number 1 New Mill Stack (GCI)	260 mg/m <sup>3</sup>	Hourly mean	6 monthly	BS EN 14791
	Oxides of nitrogen (NO and NO <sub>2</sub> as NO <sub>2</sub> )		115 mg/m <sup>3</sup>			BS EN 14792
	Carbon monoxide		-			BS EN 15058
	Particulate matter		25 mg/m <sup>3</sup>			BS EN 13284-1
A42	Particulate matter	Silo 4 filter vent A	No limit set	N/A	N/A	N/A
A43	Particulate matter	Silo 4 filter vent B	No limit set	N/A	N/A	N/A
A44	Particulate matter	Silo 5 filter vent	No limit set	N/A	N/A	N/A
A33	-	Blast furnace gas flare stack 1	-	-	-	-
A33A	-	Blast furnace gas main no.4 bleeder stack	-	-	-	-
A33B	-	Blast furnace gas main no.5 bleeder stack	-	-	-	-
A33C	-	Blast furnace gas flare stack 2	-	-	-	-

**Table S3.4 Basic Oxygen Steelmaking and casting point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
A10	Particulate matter	Iron desulphurisation/hot metal pouring fume extraction plant stack	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A10A	Particulate matter	Hot metal fume extraction number 2	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A11	Particulate matter	Lime plant dust extraction stack	50 mg/m <sup>3</sup>	Hourly mean	Annually	BS EN 13284-1
A12	Particulate matter	BOS convertor 1 primary gas cleaning stack	No Limit Set	-	-	-
A13	Particulate matter	BOS convertor 2 primary gas cleaning stack	No Limit Set	-	-	-
A14	Particulate matter	Secondary fume extraction stack north	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A15	Particulate matter	Secondary fume extraction stack centre	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A16	Particulate matter	Secondary fume extraction stack south	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A17	-	RH degasser stack	-	-	-	-
A18	Particulate matter	RD-KTB degasser stack	25 mg/m <sup>3</sup>	-	-	-
A63	Particulate matter	CAS-OB/Desulph fume extraction plant	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A64A-F	-	Concaster steam vents	-	-	-	-

**Table S3.5 Hot Mill point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
A34A	Sulphur dioxide	Reheat furnace duct north	1400 mg/m <sup>3</sup>	Hourly average	Quarterly	BS EN 14791
			Note 1. (Only if burning COG)			
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		1800 mg/m <sup>3</sup>	Hourly average	Quarterly	BS EN 14792
	Particulate matter		Note 1. Only if burning COG	Hourly mean	Annually	BS EN 13284-1
A34B	Sulphur dioxide	Reheat furnace duct south	1400 mg/m <sup>3</sup>	Hourly average	Quarterly	BS EN 14791
			Note 1(Only if burning COG)			
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		1800 mg/m <sup>3</sup>	Hourly average	Quarterly	BS EN 14792
	Particulate matter		Note 1.Only if burning COG	Hourly mean	Annually	BS EN 13284-1

Note 1: Limit for COG only to be applied once completion of BATc 48

**Table S3.6 Cold Mill point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
A19	-	Cold mill oil list vent	-	-	-	-
A21	Chlorides (as HCl)	Pickle line scrubber fume extraction	5 mg/m <sup>3</sup>	Spot (hourly)	Quarterly	BS EN 1911
A23	-	Stretch leveller fume extraction stack	-	-	-	-
A30	-	Ebner furnace stack north	-	-	-	-
A46	-	CAPL Furnace stack	-	-	-	-
A47	-	CAPL scrubber stack	-	-	-	-
A48	-	CAPL temper mill fume extraction stack	-	-	-	-
A49	-	CAPL HNX vents	-	-	-	-

**Table S3.7 Energy Generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
A50	Sulphur dioxide	Service boilers 4 and 5 stack <sup>Note 1</sup>	500 mg/m <sup>3</sup>	Monthly mean	Continuous measurement	BS EN 14181
			605 mg/m <sup>3</sup>	Annual 95% daily mean		
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		300 mg/m <sup>3</sup>	Monthly mean	Continuous measurement	BS EN 14181
			363 mg/m <sup>3</sup>	Annual 95% daily mean		

**Table S3.7 Energy Generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
	Particulate matter		40 mg/m <sup>3</sup>	Monthly mean	Continuous measurement	BS EN 14181
			48 mg/m <sup>3</sup>	Annual 95% daily mean		
A51	Sulphur dioxide	Boiler 5 (Margam A) <sup>Note 1</sup>	800 mg/m <sup>3</sup>	LCPD Fuel-weighted ELV Hourly mean	Quarterly Spot Sample	BS EN 14791
			968 mg/m <sup>3</sup>	Daily limit 121% ELV		
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	300 mg/m <sup>3</sup>	LCPD Fuel-weighted ELV Hourly mean	Quarterly Spot Sample	BS EN 14792	
		363 mg/m <sup>3</sup>	Daily limit 121% ELV			
	Particulate matter	20 mg/m <sup>3</sup>	LCPD Fuel-weighted ELV	Continuous measurement	BS EN 14181	
		24.2 mg/m <sup>3</sup>	Daily limit 121% ELV			
A52A	Sulphur dioxide	Boiler 6 (Margam C)	500 mg/m <sup>3</sup>	Monthly mean	Continuous measurement	BS EN 14181
			605 mg/m <sup>3</sup>	Annual 95% daily mean		
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	300 mg/m <sup>3</sup>	Monthly mean	Continuous measurement	BS EN 14181	
		363 mg/m <sup>3</sup>	Annual 95% daily mean			

**Table S3.7 Energy Generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
	Particulate matter		25 mg/m <sup>3</sup>	Monthly mean	Continuous measurement	BS EN 14181
			30 mg/m <sup>3</sup>	Annual 95% daily mean		
A52B	Sulphur dioxide	Boiler 7 (Margam C)	500 mg/m <sup>3</sup>	Monthly mean	Continuous measurement	BS EN 14181
			605 mg/m <sup>3</sup>	Annual 95% daily mean		
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		300 mg/m <sup>3</sup>	Monthly mean	Continuous measurement	BS EN 14181
			363 mg/m <sup>3</sup>	Annual 95% daily mean		
	Particulate matter		25 mg/m <sup>3</sup>	Monthly mean	Continuous measurement	BS EN 14181
			30 mg/m <sup>3</sup>	Annual 95% daily mean		
A53	Sulphur dioxide	Mitchell boiler <sup>Note 1</sup>	800 mg/m <sup>3</sup>	LCPD Fuel-weighted ELV Hourly mean	Quarterly spot sample	BS EN 14791
			968 mg/m <sup>3</sup>	Daily limit 121% ELV		
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		300 mg/m <sup>3</sup>	LCPD Fuel-weighted ELV Hourly mean	Quarterly spot sample	BS EN 14792
			363 mg/m <sup>3</sup>	Daily limit 121% ELV		

**Table S3.7 Energy Generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW	
	Particulate matter		20 mg/m <sup>3</sup>	LCPD Fuel-waited ELV	Continuous measurement	BS EN 14181	
			24.2 mg/m <sup>3</sup>	Daily limit 121% ELV			
A62	Sulphur dioxide	Boiler 3 LCP 473 Boiler plant fired on blast furnace gas, basic oxygen steelmaking gas, coke oven gas and natural gas	35 - 400 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181	
			38 - 440 mg/m <sup>3</sup> Note 3	Daily mean			
			70 - 800 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean			
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )			100 – 200 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181
				110 – 220 mg/m <sup>3</sup> Note 3	Daily mean		
				200 - 400 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Carbon monoxide			100 mg/m <sup>3</sup> Note 4	Monthly mean	Continuous	BS EN 14181
	Carbon monoxide			110 mg/m <sup>3</sup> Note 4	Daily mean validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide			200 mg/m <sup>3</sup> Note 4	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

**Table S3.7 Energy Generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
			5 - 30 mg/m <sup>3</sup> Note 3	Monthly mean		
	Particulate matter		5 - 33 mg/m <sup>3</sup> Note 3	Daily mean	Continuous measurement	BS EN 14181
			10 - 60 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Oxygen		-	-	Continuous as appropriate to reference	BS EN 14181
	Water vapour		-	-	-	
	Stack gas temperature		-	-	-	
	Stack gas pressure		-	-		Traceable to National Standards
	Flue gas homogeneity test		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A66	Sulphur dioxide	BOS OG heat recovery – super heater	To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17

**Table S3.7 Energy Generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
	Particulate matter		To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17
A68	Sulphur dioxide	Boiler 8 <sup>Note 2</sup> LCP 425 Boiler plant fired on blast furnace gas, basic oxygen steelmaking gas, coke oven gas and natural gas	35 - 400 mg/m <sup>3</sup> <sup>Note 5</sup>	Monthly mean	Continuous	BS EN 14181
	Sulphur dioxide		38 - 440 mg/m <sup>3</sup> <sup>Note 5</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Sulphur dioxide		70 - 800 mg/m <sup>3</sup> <sup>Note 5</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 mg/m <sup>3</sup>	Monthly mean	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		110 mg/m <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		200 mg/m <sup>3</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Carbon monoxide		100 mg/m <sup>3</sup> <sup>Note 4</sup>	Monthly mean	Continuous	BS EN 14181
	Carbon monoxide		110 mg/m <sup>3</sup> <sup>Note 4</sup>	Daily mean validated hourly averages	Continuous	BS EN 14181

**Table S3.7 Energy Generation point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
	Carbon monoxide		200 mg/m <sup>3</sup> <small>Note 4</small>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Particulate matter		5 - 30 mg/m <sup>3</sup> <small>Note 5</small>	Monthly mean	Continuous	BS EN 14181
	Particulate matter		5 - 33 mg/m <sup>3</sup> <small>Note 5</small>	Daily mean validated hourly averages	Continuous	BS EN 14181
	Particulate matter		10 - 60 mg/m <sup>3</sup> <small>Note 5</small>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Oxygen		-	-	Continuous. As appropriate to reference	BS EN 14181
	Water Vapour		-	-	Continuous. As appropriate to reference	BS EN 14181
	Stack gas temperature		-	-	Continuous. As appropriate to reference	Traceable to national standards
	Stack gas pressure		-	-	Continuous. As appropriate to reference	Traceable to national standards
	Stack gas homogeneity		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A69	Sulphur dioxide	Boiler 9 <small>Note 2</small>	35 - 400 mg/m <sup>3</sup> <small>Note 5</small>	Monthly mean	Continuous	BS EN 14181

**Table S3.7 Energy Generation point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
A69	Sulphur dioxide	LCP 426 Boiler plant fired on blast furnace gas, basic oxygen	38 - 440 mg/m <sup>3</sup> Note 5	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Sulphur dioxide	steelmaking gas, coke oven gas and natural gas	70 - 800 mg/m <sup>3</sup> Note 5	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 mg/m <sup>3</sup>	Monthly mean	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		110 mg/m <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		200 mg/m <sup>3</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Carbon monoxide		100 mg/m <sup>3</sup> Note 4	Monthly mean	Continuous	BS EN 14181
	Carbon monoxide		110 mg/m <sup>3</sup> Note 4	Daily mean validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide		200 mg/m <sup>3</sup> Note 4	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Particulate matter		5 - 30 mg/m <sup>3</sup> Note 5	Monthly mean	Continuous	BS EN 14181

**Table S3.7 Energy Generation point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
	Particulate matter		5 - 33 mg/m <sup>3</sup> Note 5	Daily mean validated hourly averages	Continuous	BS EN 14181
	Particulate matter		10 - 60 mg/m <sup>3</sup> Note 5	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Oxygen		-	-	Continuous. As appropriate to reference	BS EN 14181
	Water Vapour		-	-	Continuous. As appropriate to reference	BS EN 14181
	Stack gas temperature		-	-	Continuous. As appropriate to reference	Traceable to national standards
	Stack gas pressure		-	-	Continuous. As appropriate to reference	Traceable to national standards
	Stack gas homogeneity		-	-	Pre-operational and when there is a significant change in operation	BS EN 15259

For the purposes of Table S3.7, the following interpretations shall apply:

- For the continuous measurement systems fitted to the LCP release points defined in Table S3.1 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
- All limits are normalised to 3% O<sub>2</sub>, dry conditions, 273K
- Note 1: After the respective dates given in response to IC12, Service Boilers 4 and 5 (A50), Boiler 5 (Margam A) (A51) and Mitchell Boiler (Margam B) (A53) shall not be operated
- Note 2: Between the dates given in response to IC11b) and IC11c), Boilers 8 (A68) and 9 (A69) shall not be operated concurrently.
- Note 3: Where there is the simultaneous use of two or more fuels (natural gas, blast furnace gas (BFG), coke oven gas (COG) and basic oxygen steelmaking gas (BOSG)) in a combustion plant the emissions shall not exceed the limits calculated using Article 40(1) of the Industrial Emissions Directive (IED) calculated using the emission limit values for the fuels given in Part 1 of Annex V of this directive.
- Note 4: emission limits for carbon monoxide only applicable when the boiler is fired on natural gas.
- Note 5: Where there is the simultaneous use of two or more fuels (natural gas, blast furnace gas (BFG), coke oven gas (COG) and basic oxygen steelmaking gas (BOSG)) in a combustion plant the emissions shall not exceed the limits calculated using Article 40(1) of the Industrial Emissions Directive (IED) calculated using the emission limit values for the fuels given in Part 2 of Annex V of this directive.

**Table S3.8 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements**

Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1	Suspended Solids	Long sea outfall	150 mg/l <sup>Note 1</sup>	24 hour composite sample / qualified random sample	Weekly	BS EN 872
	Chemical Oxygen Demand		220 mg/l			BS 6068-2
	BOD		20 mg/l			BS EN 1899-1
	Sulphides		0.1 mg/l			Ref: 228 (Blue Book)
	Thiocyanate		4 mg/l			BS EN ISO 10304-3
	Cyanide		0.1 mg/l			BS 6068-2.18
	PAH (See Schedule 6 for interpretation)		0.05 mg/l			BS EN ISO 17993
	phenols		0.5 mg/l			BS 6068-2
	sum of ammonia-nitrogen, Nitrate and Nitrite		50 mg/l			BS EN ISO 11732
	Iron		5 mg/l			BS EN ISO 15586: 2003
	Lead		0.5 mg/l			BS 6068-2.29
	Zinc		2 mg/l			BS 6068-2.29
	Nickel		0.5 mg/l			BS 6068-2.29
	Total Chromium		0.5 mg/l			BS EN 1233
	Total hydrocarbons		5 mg/l	BS EN ISO 15680		
Total volume of discharge		6000m <sup>3</sup> /hour	Hourly	Continuous	Flow meter	

**Table S3.8 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements**

Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W2	Suspended Solids	Site run off and treated site effluent into Arnallt Culvert	-	-	-	-
	Oil and grease		-	-	-	-
	Flow		-	-	-	-
	Temperature		-	-	-	-
W3	Suspended Solids	River Arnallt and floodwater surface drainage via Abbey Beach outfall	200 mg/l	24 hour average from beginning of discharge	Weekly	BS EN 872
	Oil and grease		20 mg/l	24 hour average from beginning of discharge	Weekly	SCA Blue Book 77 ISBN0117517283
	Flow		-	-	-	-
	Temperature		-	-	-	-
W4	pH	Iron Ore Stockyard into Afan Estuary	No Limit Set	Spot Sample	Monthly if flow detected	BS ISO10523
	Suspended Solids					BS EN 872
	Total Iron					BS EN ISO 15586: 2003
	Soluble Iron					BS EN ISO 15586: 2003
	Oil and grease					-
W5	Suspended Solids	Cooling Water discharge into Port Talbot Dock	20 mg/l Note 2	24 hour composite sample / qualified random sample	Background weekly Discharge weekly	BS EN 872
	Oil and grease		-	-	-	-
	Flow		16,000 m <sup>3</sup> /hr 350,000 m <sup>3</sup> /day	24 hour period beginning 00.01	Continuous	Flow meter
	Temperature		36°C	Maximum	Continuous	Standard thermocouple

**Table S3.8 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements**

Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method	
W6 <sup>Note 3</sup>	Chemical Oxygen Demand	Coke Ovens	220 mg/l	24 hour composite sample / qualified random sample	Weekly	BS 6068-2	
	BOD		20 mg/l			BS EN 1899-1	
	Sulphides		0.1 mg/l			Ref: 228 (Blue Book)	
	Thiocyanate		4 mg/l			BS EN ISO 10304-3	
	Cyanide		0.1 mg/l			BS 6068-2.18	
	PAH (See Schedule 6 for interpretation)		0.05 mg/l			BS EN ISO 17993	
	phenols		0.5 mg/l			BS 6068-2	
	sum of ammonia-nitrogen, Nitrate and Nitrite		50 mg/l			BS EN ISO 11732	
Total daily volume of discharge	-	Instantaneous	Continuous	Flow meter			
W7 <sup>Note 3</sup>	Suspended Solids	Blast furnace	30 mg/l	24 hour composite sample / qualified random sample	Weekly	BS EN 872	
	Iron		5 mg/l		Weekly	BS EN ISO 15586: 2003	
	Lead		0.5 mg/l			BS 6068-2.29	
	Zinc		2 mg/l			BS 6068-2.29	
	Cyanide		0.4 mg/l			BS 6068-2.18	
	Total daily volume of discharge		-		Instantaneous	Continuous	Flow meter
	W8 <sup>Note 3</sup>		Suspended Solids		Basic oxygen steelmaking and casting	20 mg/l	24 hour composite sample / qualified random sample
Iron		5 mg/l	BS EN ISO 15586: 2003				

**Table S3.8 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements**

Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
	Zinc		2 mg/l			BS 6068-2.29
	Nickel		0.5 mg/l			BS 6068-2.29
	Total Chromium		0.5 mg/l			BS EN 1233
	Total hydrocarbons		5 mg/l			BS EN ISO 15680
	Total daily volume of discharge		-	Instantaneous	Continuous	Flow meter

Note 1: See Annex to Conditions – Derogation under Industrial Emissions Directive

Note 2: Shall not exceed the background concentration by the figure indicated

Note 3: The operator shall only apply the limits set for W6, W7 and W8 when the limits at W1 have not been applied.

**Table S3.9A Annual limits**

Substance	Medium	Limit (including unit)
Oxides of nitrogen	Air	A55 – 3000 tonnes
Sulphur dioxide	Air	A55 – 600 tonnes
Particulate matter	Air	A55 – 100 tonnes
Particulate matter	Air	A56 – 25 tonnes
Oxides of nitrogen	Air	A57 – 140 tonnes
Sulphur dioxide	Air	A57 – 750 tonnes
Particulate matter	Air	A58 – 10 tonnes
Suspended solids	Water	2,250,000 kg
Oil and grease	Water	360,000 kg
Free cyanide	Water	2700 kg
Ammonical nitrogen	Water	400,000 kg
Phenol	Water	18,000 kg

**Table S3.9B Annual limits (Excluding start up and shut down except where otherwise stated).**

Substance	Medium	Limit (including unit)		Emission Points
		Assessment year	LCP TNP Limit	
Particulate matter, Sulphur dioxide and Oxides of nitrogen	Air	01/01/16 and subsequent years until 31/12/19	Emission allowance figure shown in the TNP Register as at 30 April the following year	Define each LCP as per the TNP <sup>Note 1</sup>
		01/06/20-30/06/20	Emission allowance figure shown in the TNP Register as at 31 October 2020	

Note 1: Following the respective dates given in response to IC12 annual limits for LCP 337, LCP 338 and LCP 339 shall no longer apply.

**Table S3.10 Process monitoring requirements**

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Quarterly sinter strand stoppages in excess of 15 minutes	-	Quarterly	-	-
A record of BFG production (make), flaring and export, and of fuel gas consumption and resulting calculated SO <sub>2</sub> and NO <sub>x</sub> mass	-	Quarterly	-	-
A record of slag granulation non-operation shall be maintained, the percentage of the total slag tonnage granulated each quarter	-	Quarterly	-	-
A record of all blast furnace bleeder openings in excess of 30 seconds, duration thereof and reason for opening shall be maintained	-	Quarterly	-	-
A record of all BFG flare stack operations	-	Quarterly	-	-

**Table S3.10 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>
A record of all iron plating operations	-	Quarterly	-	-
A record of BOS secondary vent system non-operation	-	Quarterly	-	-
A record of BOS gas venting (or flaring), which does not include that released from the initial and final blowing stages	-	Quarterly	-	-
A record of BOS gas production (make), which does not include that produced from the initial and final blowing stages	-	Quarterly	-	-
Number of coke ovens discharged total, all outages and unplanned outages; with Minister Stein used, % of ovens discharged with Minister Stein, Minister Stein % availability - unplanned & all outages	-	Quarterly	-	-
A record of the amount of coke oven gas flared or bled from the coke oven batteries	-	Quarterly	-	-
The Operator shall record all cleaning activities on the battery underfiring system	-	Quarterly	-	-
The Operator shall record any sticker oven, to include oven number, carbonising time, temperatures recorded, any coal blend variation, the date and time the oven was eventually discharged and any remedial work required to the oven.	-	Quarterly	-	-
A record of environmental/operational parameters related to throughput shall be made and reported	-	Annual	-	-
A record of LCPD operational and fuel dependent parameters	-	Quarterly	-	-
Performance of coke oven gas desulphurisation plant after completion of BATc 48	Hydrogen sulphide	6 monthly		Against 1000 mg/m <sup>3</sup> limit

## Schedule 3(b) – Emissions and monitoring

### Emissions from 1<sup>st</sup> July 2020

**Table S3.1 Sinter plant point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
A1	Sulphur dioxide	Sinter plant (main stack)	500 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
	Specific individual poly-cyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6		-	Spot	6 monthly  (min interval between monitoring 2 months)	BS ISO11338
	Dioxins and furans iTEQ		0.4 ng/m <sup>3</sup>	Average of all extractive spot samples over calendar year	6 monthly	BS EN 1948: Parts 1, 2 and 3
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		500 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
	Particulate matter		40 mg/m <sup>3</sup> Note 1	Daily mean	Continuous measurement	BS EN 14181
	Mercury		0.05 mg/m <sup>3</sup>	Spot (taken over half hour)	Annual	BS EN 14385

**Table S3.1 Sinter plant point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
A2	Particulate matter	Sinter plant (deduster stack)	10 mg/m <sup>3</sup> <sup>Note 2</sup>	Daily mean	Continuous measurement	BS EN 14181
A3	-	Sinter plant (Mixing and rolling drum stack)	-	-	-	-

Note 1: Limit only applied during normal operations as agreed with Natural Resources Wales.

Note 2: See Annex to Conditions – Derogation under Industrial Emissions Directive

**Table S3.2 Coke oven plant point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
A54	DLCF (Door Leakage Control Factor)	Morfa coke oven batteries	10% leakage factor (90% doors no leaks)	Monthly mean	Daily	Modified US EPA Method 303 as agreed with NRW
	TLCF (Top Leakage Control Factor)		1% leakage factor (99% tops no leaks)	Monthly mean	Daily	Modified US EPA Method 303 as agreed with NRW
	Visible emissions from charging		<30 seconds per charge	Monthly mean	Daily	Modified US EPA Method 303 as agreed with NRW
A55	Visible smoke	Morfa main stack	Ringelmann 1	30 mins <sup>(Note 1)</sup>	Continuous Measurement	BS2742:1969

**Table S3.2 Coke oven plant point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
	Sulphur dioxide		500 mg/m <sup>3</sup> (Note 2)	Hourly mean	Six monthly (minimum of 2 months between monitoring)	BS EN 14791
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		1600 mg/m <sup>3</sup> (lean) 4000 mg/m <sup>3</sup> (rich)	Hourly mean	Six monthly (minimum of 2 months between monitoring)	BS EN 14792
	Particulate matter		20 mg/m <sup>3</sup> (Note 3)	Hourly mean	Annually	BS EN 13284-1
A56	Visible smoke	Minister stein (3 flues)	No visible releases	-	-	-
	Particulate matter		20 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 13284-1
A57	Visible smoke	Ammonia incinerator	No visible releases	-	-	-
	Sulphur dioxide		2000 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14791
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		200 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14792
A60A	-	Quench tower (old)	-	-	-	-
A60B	Particulate matter	Quench tower (new)	25g/t	Average over sampling period	-	Mohrhauer method

**Table S3.2 Coke oven plant point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
A61	-	Collecting main bleeders	-	-	-	-
A67	-	Gas flare stack	-	-	-	-

Note 1: The 30 minute in any day limit does not include ovens undergoing maintenance such as physical (ceramic welding, refractory patching etc.) and/or mechanical (replacing valves, door replacement etc.) repairs

Note 2: Only applies when the derogation for BATc 48 expires. Existing limit of 250 mg/m<sup>3</sup> (lean) and 1000 mg/m<sup>3</sup> (rich) and associated monitoring arrangements apply in the interim.

Note 3: Only applies when the derogation for BATc 48 expires. Existing limit of 100 mg/m<sup>3</sup> and associated monitoring arrangements apply in the interim.

**Table S3.3 Blast furnace point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
<b>Blast furnace 4</b>						
A4	-	Bell-less top	-	-	-	-
A4A	-	Bleeders	-	-	-	-
A6	Sulphur dioxide	Hot blast stove stacks	200 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14791
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14792

**Table S3.3 Blast furnace point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
	Particulate matter		10 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 13284-1
A8A	Particulate matter	Casthouse fume extraction North	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A8B	Particulate matter	Casthouse fume extraction South	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A65	Particulate matter	Ferrous stock house filter plant stack	10 mg/m <sup>3</sup>	Hourly mean	Annual	BS EN 13284-1
<b>Blast furnace 5</b>						
A5	-	Bell-less top	-	-	-	-
A5A	-	Bleeders	-	-	-	-
A7	Sulphur dioxide	Hot blast stove stacks	200 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14791
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14792
	Particulate matter		10 mg/m <sup>3</sup>	Hourly mean	Quarterly (minimum of 4 weeks between monitoring)	BS EN 13284-1
A9	Particulate matter	Casthouse fume extraction	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181

**Table S3.3 Blast furnace point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
<b>Blast furnace associated emissions to air</b>						
A37	Particulate matter	Fluidised bed dryer 1 bag filter plant stack	20 mg/m <sup>3</sup>	Hourly mean	Annually	BS EN 13284-1
A38	Particulate matter	Fluidised bed dryer 2 bag filter plant stack	20 mg/m <sup>3</sup>	Hourly mean	Annually	BS EN 13284-1
A39	Sulphur dioxide	Number 1 New Mill Stack (GCI)	260 mg/m <sup>3</sup>	Hourly mean	6 monthly	BS EN 14791
	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		115 mg/m <sup>3</sup>			BS EN 14792
	Carbon monoxide		-			BS EN 15058
	Particulate matter		25 mg/m <sup>3</sup>			BS EN 13284-1
A42	Particulate matter	Silo 4 filter vent A	No limit set	N/A	N/A	N/A
A43	Particulate matter	Silo 4 filter vent B	No limit set	N/A	N/A	N/A
A44	Particulate matter	Silo 5 filter vent	No limit set	N/A	N/A	N/A
A33	-	Blast furnace gas flare stack 1	-	-	-	-
A33A	-	Blast furnace gas main no.4 bleeder stack	-	-	-	-
A33B	-	Blast furnace gas main no.5 bleeder stack	-	-	-	-
A33C	-	Blast furnace gas flare stack 2	-	-	-	-

**Table S3.4 Basic oxygen steelmaking and casting point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location as detailed in Table S3</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method or as otherwise agreed with NRW</b>
A10	Particulate matter	Iron desulphurisation/hot metal pouring fume extraction plant stack	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A10A	Particulate matter	Hot metal fume extraction number 2	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A11	Particulate matter	Lime plant dust extraction stack	50 mg/m <sup>3</sup>	Hourly mean	Annually	BS EN 13284-1
A12	Particulate matter	BOS convertor 1 primary gas cleaning stack	No Limit Set	-	-	-
A13	Particulate matter	BOS convertor 2 primary gas cleaning stack	No Limit Set	-	-	-
A14	Particulate matter	Secondary fume extraction stack north	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A15	Particulate matter	Secondary fume extraction stack centre	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A16	Particulate matter	Secondary fume extraction stack south	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A17	-	RH degasser stack	-	-	-	-
A18	Particulate matter	RD-KTB degasser stack	25 mg/m <sup>3</sup>	-	-	-
A63	Particulate matter	CAS-OB/Desulph fume extraction plant	15 mg/m <sup>3</sup>	Daily mean	Continuous measurement	BS EN 14181
A64A-F	-	Concaster steam vents	-	-	-	-

**Table S3.5 Hot mill point source emissions to air – emission limits and monitoring requirements**

mission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
A34A	Sulphur dioxide	Reheat furnace duct north	1400 mg/m <sup>3</sup>	Hourly average	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		1800 mg/m <sup>3</sup>	Hourly average	Quarterly	BS EN 14792
	Particulate matter		Note 1. (Only if burning COG) Only if burning COG	Hourly mean	Annually	BS EN 13284-1
A34B	Sulphur dioxide	Reheat furnace duct south	1400 mg/m <sup>3</sup>	Hourly average	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		1800 mg/m <sup>3</sup>	Hourly average	Quarterly	BS EN 14792
	Particulate matter		Note 1. (Only if burning COG) Only if burning COG	Hourly mean	Annually	BS EN 13284-1

Note 1: Limit for COG only to be applied once completion of BATc 48

**Table S3.6 Cold mill point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
A19	-	Cold mill oil list vent	-	-	-	
A21	Chlorides (as HCl)	Pickle line scrubber fume extraction	5 mg/m <sup>3</sup>	Spot (hourly)	Quarterly	BS EN 1911

**Table S3.6 Cold mill point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method or as otherwise agreed with NRW
A23	-	Stretch leveller fume extraction stack	-	-	-	-
A30	-	Ebner furnace stack north	-	-	-	-
A46	-	CAPL Furnace stack	-	-	-	-
A47	-	CAPL scrubber stack	-	-	-	-
A48	-	CAPL temper mill fume extraction stack	-	-	-	-
A49	-	CAPL HNX vents	-	-	-	-

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A50	Sulphur dioxide	Service boilers 4 and 5 stack <sup>Note 1</sup>	35 - 400 mg/m <sup>3</sup> <sup>Note 3</sup>	Monthly mean	Continuous measurement	BS EN 14181
			38 - 440 mg/m <sup>3</sup> <sup>Note 3</sup>	Daily mean		
			70 - 800 mg/m <sup>3</sup> <sup>Note 3</sup>	Annual 95% hourly mean		
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 – 300 mg/m <sup>3</sup> <sup>Note 3</sup>	Monthly mean	Continuous measurement	BS EN 14181
			110 – 330 mg/m <sup>3</sup> <sup>Note 3</sup>	Daily mean		

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
	Particulate matter		200 - 600 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
			5 - 30 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181
			5 - 33 mg/m <sup>3</sup> Note 3	Daily mean		
			10 - 60 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Oxygen		-	-	Continuous as appropriate to reference	BS EN 14181
	Water vapour		-	-		
	Stack gas temperature		-	-		Traceable to national standards
	Stack gas pressure		-	-		
	Flue gas homogeneity test		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A51	Sulphur dioxide	Boiler 5 (Margam A) <sup>Note 1</sup>	35 - 400 mg/m <sup>3</sup> Note 3	Hourly average	Quarterly Spot Sample	BS EN 14791

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 – 300 mg/m <sup>3</sup> Note 3	Hourly average	Quarterly Spot Sample	BS EN 14792
	Particulate matter		5 - 30 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181
			5 - 33 mg/m <sup>3</sup> Note 3	Daily mean		
			10 - 60 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Oxygen		-	-	Continuous as appropriate to reference	BS EN 14181
	Water vapour		-	-		
	Stack gas temperature		-	-		Traceable to national standards
	Stack gas pressure		-	-		
	Flue gas homogeneity test		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A52A	Sulphur dioxide	Boiler 6 (Margam C)	35 - 400 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
			38 - 440 mg/m <sup>3</sup> Note 3	Daily mean		
			70 - 800 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 – 300 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181
			110 – 330 mg/m <sup>3</sup> Note 3	Daily mean		
			200 - 600 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Particulate matter		5 - 30 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181
			5 - 33 mg/m <sup>3</sup> Note 3	Daily mean		
			10 - 60 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Oxygen		-	-	Continuous as appropriate to reference	BS EN 14181
	Water vapour		-	-		
	Stack gas temperature		-	-		Traceable to national standards
	Stack gas pressure		-	-		

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
	Flue gas homogeneity test		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A52B	Sulphur dioxide	Boiler 7 (Margam C)	35 - 400 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181
			38 - 440 mg/m <sup>3</sup> Note 3	Daily mean		
			70 - 800 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 – 300 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181
			110 – 330 mg/m <sup>3</sup> Note 3	Daily mean		
			200 - 600 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Particulate matter		5 - 30 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181
			5 - 33 mg/m <sup>3</sup> Note 3	Daily mean		

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
			10 - 60 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Oxygen		-	-	Continuous as appropriate to reference	BS EN 14181
	Water vapour		-	-		
	Stack gas temperature		-	-		
	Stack gas pressure		-	-		
	Flue gas homogeneity test		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A53	Sulphur dioxide	Mitchell boiler (Margam B) Note 1	35 - 400 mg/m <sup>3</sup> Note 3	Hourly average	Quarterly Spot Sample	BS EN 14791
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 – 300 mg/m <sup>3</sup> Note 3	Hourly average	Quarterly Spot Sample	BS EN 14792
	Particulate matter		5 - 30 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181
			5 - 33 mg/m <sup>3</sup> Note 3	Daily mean		

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
			10 - 60 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Oxygen		-	-	Continuous as appropriate to reference	BS EN 14181
	Water vapour		-	-		
	Stack gas temperature		-	-		
	Stack gas pressure		-	-		
	Flue gas homogeneity test		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A62		Boiler 3	35 - 400 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181
	Sulphur dioxide		38 - 440 mg/m <sup>3</sup> Note 3	Daily mean		
			70 - 800 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 – 200 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181
			110 – 220 mg/m <sup>3</sup> Note 3	Daily mean		

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
			200 - 400 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Carbon monoxide		100 mg/m <sup>3</sup> Note 5	Monthly mean	Continuous	BS EN 14181
	Carbon monoxide		110 mg/m <sup>3</sup> Note 5	Daily mean validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide		200 mg/m <sup>3</sup> Note 5	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Particulate matter		5 - 30 mg/m <sup>3</sup> Note 3	Monthly mean	Continuous measurement	BS EN 14181
			5 - 33 mg/m <sup>3</sup> Note 3	Daily mean		
			10 - 60 mg/m <sup>3</sup> Note 3	Annual 95% hourly mean		
	Oxygen		-	-	Continuous as appropriate to reference	BS EN 14181
	Water vapour		-	-		
	Stack gas temperature		-	-		

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
	Stack gas pressure		-	-		Traceable to national standards
	Flue gas homogeneity test		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A66	Sulphur dioxide	BOS OG heat recovery – super heater	To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17
	Particulate matter		To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17
	Carbon monoxide		To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17	To be agreed on completion of IC17
A68	Sulphur dioxide	Boiler 8 <sup>Note 2</sup>	35 - 400 mg/m <sup>3</sup> <small>Note 4</small>	Monthly mean	Continuous	BS EN 14181

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
	Sulphur dioxide	LCP 425 Boiler plant fired on blast furnace gas, basic oxygen steelmaking gas, coke oven gas and natural gas	38 - 440 mg/m <sup>3</sup> Note 4	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Sulphur dioxide		70 - 800 mg/m <sup>3</sup> Note 4	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 mg/m <sup>3</sup> Note 4	Monthly mean	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		110 mg/m Note 4	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		200 mg/m <sup>3</sup> Note 4	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Carbon monoxide		100 mg/m <sup>3</sup> Note 5	Monthly mean	Continuous	BS EN 14181

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
	Carbon monoxide		110 mg/m <sup>3</sup> Note 5	Daily mean validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide		200 mg/m <sup>3</sup> Note 5	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Particulate matter		5 - 30 mg/m <sup>3</sup> Note 4	Monthly mean	Continuous	BS EN 14181
	Particulate matter		5 - 33 mg/m <sup>3</sup> Note 4	Daily mean validated hourly averages	Continuous	BS EN 14181
	Particulate matter		10 - 60 mg/m <sup>3</sup> Note 4	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Oxygen		-	-	Continuous. As appropriate to reference	BS EN 14181
	Water Vapour		-	-	Continuous. As appropriate to reference	BS EN 14181

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
	Stack gas temperature		-	-	Continuous. As appropriate to reference	Traceable to national standards
	Stack gas pressure		-	-	Continuous. As appropriate to reference	Traceable to national standards
	Stack gas homogeneity		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A69	Sulphur dioxide	Boiler 9 <sup>Note 2</sup> LCP 426 Boiler plant fired on blast furnace gas, basic oxygen	35 - 400 mg/m <sup>3</sup> <sup>Note 4</sup>	Monthly mean	Continuous	BS EN 14181
	Sulphur dioxide	steelmaking gas, coke oven gas and natural gas	38 - 440 mg/m <sup>3</sup> <sup>Note 4</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Sulphur Dioxide		70 - 800 mg/m <sup>3</sup> <sup>Note 4</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		100 mg/m <sup>3</sup> Note 4	Monthly mean	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		110 mg/m <sup>3</sup> Note 4	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		200 mg/m <sup>3</sup> Note 4	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Carbon monoxide		100 mg/m <sup>3</sup> Note 5	Monthly mean	Continuous	BS EN 14181
	Carbon monoxide		110 mg/m <sup>3</sup> Note 5	Daily mean validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide		200 mg/m <sup>3</sup> Note 5	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
	Particulate matter		5 - 30 mg/m <sup>3</sup> Note 4	Monthly mean	Continuous	BS EN 14181
	Particulate matter		5 - 33 mg/m <sup>3</sup> Note 4	Daily mean validated hourly averages	Continuous	BS EN 14181
	Particulate matter		10 - 60 mg/m <sup>3</sup> Note 4	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Oxygen		-	-	Continuous As appropriate to reference	BS EN 14181
	Water Vapour		-	-	Continuous As appropriate to reference	BS EN 14181
	Stack gas temperature		-	-	Continuous As appropriate to reference	Traceable to national standards
	Stack gas pressure		-	-	Continuous As appropriate to reference	Traceable to national standards

**Table S3.7 Energy generation point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location as detailed in Table S3	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
	Stack gas homogeneity		-	-	Pre-operational and when there is a significant change in operation	BS EN 15259

For the purposes of Table S3.7, the following interpretations shall apply:

- For the continuous measurement systems fitted to the LCP release points defined in Table S3.1 the validated hourly, 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
- All limits are normalised to 3% O<sub>2</sub>, dry conditions, 273K

Note 1: After the respective dates given in response to IC12, Service Boilers 4 and 5 (A50), Boiler 5 (Margam A) (A51) and Mitchell Boiler (Margam B) (A53) shall not be operated

Note 2: Between the dates given in response to IC11b) and IC11c), Boilers 8 (A68) and 9 (A69) shall not be operated concurrently

Note 3: Where there is the simultaneous use of two or more fuels (natural gas, blast furnace gas (BFG), coke oven gas (COG) and basic oxygen steelmaking gas (BOSG)) in a combustion plant the emissions shall not exceed the limits calculated using Article 40(1) of the Industrial Emissions Directive (IED) calculated using the emission limit values for the fuels given in Part 1 of Annex V of this directive.

Note 4: Where there is the simultaneous use of two or more fuels (natural gas, blast furnace gas (BFG), coke oven gas (COG) and basic oxygen steelmaking gas (BOSG)) in a combustion plant the emissions shall not exceed the limits calculated using Article 40(1) of the Industrial Emissions Directive (IED) calculated using the emission limit values for the fuels given in Part 2 of Annex V of this directive.

Note 5: emission limits for carbon monoxide only applicable when the boiler is fired on natural gas

**Table S3.8 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (incl. unit)</b>	<b>Reference Period or as agreed with NRW</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
W1	Suspended Solids	Long sea outfall	150 mg/l <sup>Note 1</sup>	24 hour composite sample / qualified random sample	Weekly	BS EN 872
	Chemical Oxygen Demand		220 mg/l			BS 6068-2
	BOD		20 mg/l			BS EN 1899-1
	Sulphides		0.1 mg/l			Ref: 228 (Blue Book)
	Thiocyanate		4 mg/l			BS EN ISO 10304-3
	Cyanide		0.1 mg/l			BS 6068-2.18
	PAH (See Schedule 6 for interpretation)		0.05 mg/l			BS EN ISO 17993
	phenols		0.5 mg/l			BS 6068-2
	sum of ammonia-nitrogen, Nitrate and Nitrite		50 mg/l			BS EN ISO 11732
	Iron		5 mg/l			BS EN ISO 15586: 2003
	Lead		0.5 mg/l			BS 6068-2.29

**Table S3.8 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements**

Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference Period or as agreed with NRW	Monitoring frequency	Monitoring standard or method
	Zinc		2 mg/l			BS 6068-2.29
	Nickel		0.5 mg/l			BS 6068-2.29
	Total Chromium		0.5 mg/l			BS EN 1233
	Total hydrocarbons		5 mg/l			BS EN ISO 15680
	Total volume of discharge		6000m <sup>3</sup> /hour	Instantaneous	Continuous	Flow meter
W2	Suspended Solids	Site run off and treated site effluent into Arnallt Culvert	-	-	-	-
	Oil and grease		-	-	-	-
	Flow		-	-	-	-
	Temperature		-	-	-	-
W3	Suspended Solids	River Arnallt and floodwater surface drainage via Abbey Beach outfall	200 mg/l	24 hour average from beginning of discharge	Weekly	BS EN 872
	Oil and grease		20 mg/l	24 hour average from beginning of discharge	Weekly	SCA Blue Book 77 ISBN0117517283
	Flow		-	-	-	-
	Temperature		-	-	-	-
W4	pH	Iron Ore Stockyard into Afan Estuary		Spot Sample		BS ISO10523
	Suspended Solids					BS EN 872
	Total Iron		No Limit Set		Monthly if flow detected	BS EN ISO 15586 2003
	Soluble Iron					BS EN ISO 15586 2003
	Oil and grease			Visible Check		-

**Table S3.8 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements**

Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference Period or as agreed with NRW	Monitoring frequency	Monitoring standard or method			
W5	Suspended Solids	Cooling Water discharge into Port Talbot Dock	20 mg/l <small>Note 2</small>	24 hour composite sample / qualified random sample	Background weekly Discharge weekly	BS EN 872			
	Oil and grease		-				-	-	-
	Flow		16,000 m <sup>3</sup> /hr 350,000 m <sup>3</sup> /day				24 hour period beginning 00.01	Continuous	Flow meter
	Temperature		36°C				Maximum	Continuous	Standard thermocouple
W6 <small>Note 3</small>	Chemical Oxygen Demand	Coke Ovens	220 mg/l	24 hour composite sample / qualified random sample	Weekly	BS 6068-2			
	BOD		20 mg/l			BS EN 1899-1			
	Sulphides		0.1 mg/l			Ref: 228 (Blue Book)			
	Thiocyanate		4 mg/l			BS EN ISO 10304-3			
	Cyanide		0.1 mg/l			BS 6068-2.18			
	PAH (See Schedule 6 for interpretation)		0.05 mg/l			BS EN ISO 17993			
	phenols		0.5 mg/l			BS 6068-2			
	sum of ammonia-nitrogen, Nitrate and Nitrite		50 mg/l			BS EN ISO 11732			

**Table S3.8 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements**

Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference Period or as agreed with NRW	Monitoring frequency	Monitoring standard or method
	Total daily volume of discharge		-	Instantaneous	Continuous	Flow meter
W7 <sup>Note 3</sup>	Suspended Solids	Blast furnace	30 mg/l	24 hour composite sample / qualified random sample	Weekly	BS EN 872
	Iron		5 mg/l			BS EN ISO 15586: 2003
	Lead		0.5 mg/l			BS 6068-2.29
	Zinc		2 mg/l			BS 6068-2.29
	Cyanide		0.4 mg/l			BS 6068-2.18
	Total daily volume of discharge		-			Instantaneous
W8 <sup>Note 3</sup>	Suspended Solids	Basic oxygen steelmaking and casting	20 mg/l	24 hour composite sample / qualified random sample	Weekly	BS EN 872
	Iron		5 mg/l			BS EN ISO 15586: 2003
	Zinc		2 mg/l			BS 6068-2.29
	Nickel		0.5 mg/l			BS 6068-2.29
	Total Chromium		0.5 mg/l			BS EN 1233
	Total hydrocarbons		5 mg/l			BS EN ISO 15680
	Total daily volume of discharge		-			Instantaneous

Note 1: See Annex to Conditions – Derogation under Industrial Emissions Directive

Note 2: Shall not exceed the background concentration by the figure indicated

Note 3: The operator shall only apply the limits set for W6, W7 and W8 when the limits at W1 have not been applied.

**Table S3.9A Annual limits**

Substance	Medium	Limit (including unit)
Oxides of nitrogen	Air	A55 – 3000 tonnes
Sulphur dioxide	Air	A55 – 600 tonnes
Particulate matter	Air	A55 – 100 tonnes
Particulate matter	Air	A56 – 25 tonnes
Oxides of nitrogen	Air	A57 – 140 tonnes
Sulphur dioxide	Air	A57 – 750 tonnes
Particulate matter	Air	A58 – 10 tonnes
Suspended solids	Water	2,250,000 kg
Oil and grease	Water	360,000kg
Free cyanide	Water	2700 kg
Ammonical nitrogen	Water	400,000 kg
Phenol	Water	18,000 kg

**Table S3.10 Process monitoring requirements**

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Quarterly sinter strand stoppages in excess of 15 minutes	-	Quarterly	-	-
A record of BFG production (make), flaring and export, and of fuel gas consumption and resulting calculated SO <sub>2</sub> and NO <sub>x</sub> mass	-	Quarterly	-	-
A record of slag granulation non-operation shall be maintained, the percentage of the total slag tonnage granulated each quarter	-	Quarterly	-	-
A record of all blast furnace bleeder openings in excess of 30 seconds, duration thereof and reason for opening shall be maintained	-	Quarterly	-	-
A record of all BFG flare stack operations	-	Quarterly	-	-
A record of all iron plating operations	-	Quarterly	-	-
A record of BOS secondary vent system non-operation	-	Quarterly	-	-
A record of BOS gas venting (or flaring), which does not include that released from the initial and final blowing stages	-	Quarterly	-	-

**Table S3.10 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>
A record of BOS gas production (make), which does not include that produced from the initial and final blowing stages	-	Quarterly	-	-
Number of coke ovens discharged total, all outages and unplanned outages; with Minister Stein used, % of ovens discharged with Minister Stein, Minister Stein % availability - unplanned & all outages	-	Quarterly	-	-
A record of the amount of coke oven gas flared or bled from the coke oven batteries	-	Quarterly	-	-
The Operator shall record all cleaning activities on the battery underfiring system	-	Quarterly	-	-
The Operator shall record any sticker oven, to include oven number, carbonising time, temperatures recorded, any coal blend variation, the date and time the oven was eventually discharged and any remedial work required to the oven.	-	Quarterly	-	-
A record of environmental/operational parameters related to throughput shall be made and reported	-	Annual	-	-
A record of LCPD operational and fuel dependent parameters	-	Quarterly	-	-
Performance of coke oven gas desulphurisation plant after completion of BATc 48	Hydrogen sulphide	6 months	Daily mean	Against 1000 mg/m <sup>3</sup> limit Method 11

# Schedule 4 - Reporting

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

<b>Table S4.1 Reporting of monitoring data</b>			
<b>Parameter</b>	<b>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Emissions to air Parameters as required by condition 3.5.1.	Sinter Plant - A1, A2	Every 12 months	1 January
	Coke Oven Plant - A54, A55, A56, A57, A58, A60B		
	Blast Furnaces – A6, A8A, A8B, A65, A7, A9, A35, A36, A37, A38, A42, A43, A44		
	BOS plant – A10, A10A, A11, A12, A13, A14, A15, A16, A18, A63, A66		
	Hot Mill – A34A, A34B		
	Cold Mill – A21		
	Energy generation – A50, A51, A52A, A52B, A53, A62 <small>Note 1</small> A68 and A69 <small>Note 2</small>	Every 3 months	1 January, 1 April, 1 July, 1 October
Emissions to water Parameters as required by condition 3.5.1	W1, W2, W3, W4, W5, W6	Every 6 months	1 January, 1 April, 1 July, 1 October

Note 1: After the respective dates given in response to IC12 there will no longer be a requirement to report emissions to air from emission points A50, A51 and A53.

Note 2: The requirement to report on emissions to air from emission points A68 and A69 will start following the date given in response to IC11b)

<b>Table S4.2: Annual production/treatment</b>	
<b>Parameter</b>	<b>Units</b>
Liquid Steel produced	tonnes
Sinter production	tonnes
Coke produced	tonnes
Power generated	GWHrs

<b>Table S4.3 Chapter III Performance parameters for reporting to DEFRA and other Performance parameters</b>		
<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Water usage (potable only)	Annually	tonnes
Annual Fuel Usage for each LCP	Annually	TJ
Energy efficiency	Annually	To be agreed with NRW

**Table S4.3 Chapter III Performance parameters for reporting to DEFRA and other Performance parameters**

Parameter	Frequency of assessment	Units
Total effluent discharge	Annually	m <sup>3</sup>
CEM invalidation	Annually	Hours and days
Number of operational days / year	Annually	Days
Number of valid monitoring days / year	Annually	Days
% monitoring availability	Annually	%
Number of compliance days	Annually	Days
% compliance with BATc / BAT AEL	Annually	%
BATc / BAT AEL non compliance reports	Annually	%
Thermal Input Capacity for each LCP	Annually	MW
Total Emissions to Air of NO <sub>x</sub> for each LCP	Annually	t
Total Emissions to Air of SO <sub>2</sub> for each LCP	Annually	t
Total Emissions to Air of particulate matter (dust) for each LCP	Annually	t
Operating Hours for each LCP (Load Factor)	Annually	hr

**Table S4.4 Reporting forms**

Media/ parameter	Reporting format	Starting Point	NRW recipient	Date of form
Air	Form Air 1 or other form as agreed in writing by Natural Resources Wales	20/04/15	Area Office	20/04/15
Air	Form IED CON1- SO <sub>2</sub> , NO <sub>x</sub> and dust for utility boilers	01/01/16	Area Office	31/12/15
Air & Energy	Form IED AR1 - SO <sub>2</sub> , NO <sub>x</sub> and dust mass emission and energy	01/01/16	Area Office	31/12/15
Air	Form IED RTA1 – TNP quarterly emissions summary log	01/01/16	Area Office and TNP Register	31/12/15
LCP	Form IED HR1 – operating hours	01/01/16	National	31/12/15
CEMs	Form IED CEM – Invalidation Log	01/01/16	Area Office	31/12/15
Air	Form Air – TNP allocation log or other form as agreed in Writing by Natural Resources Wales	XX/XX/15	Area Office	XX/XX/15
Air	Form Air – 8 PPC discontinuous monitoring for SO <sub>2</sub> , NO <sub>x</sub> , PM and load or other form as agreed in writing by Natural Resources Wales	XX/XX/15	Area Office	XX/XX/15
Air	TO1N – LCP allocation in the TNP	XX/XX/15	Area Office	XX/XX/15
Air	TO2N – Company allocation in the TNP	XX/XX/15	Area Office	XX/XX/15
Water and Land	Form Water 1 or other form as agreed in writing by Natural Resources Wales	20/04/15	Area Office	20/04/15
Water usage	Form Water Usage 1 or other form as agreed in writing by Natural Resources Wales	20/04/15	Area Office	20/04/15
Energy usage	Form Energy 1 or other form as agreed in writing by Natural Resources Wales	20/04/15	Area Office	20/04/15
Other performance indicators	Form Performance 1 or other form as agreed in writing by Natural Resources Wales	20/04/15	Area Office	20/04/15

**Table S4.4 Reporting forms**

<b>Media/ parameter</b>	<b>Reporting format</b>	<b>Starting Point</b>	<b>NRW recipient</b>	<b>Date of form</b>
Waste subject to condition 4.2.5	Waste tonnage return form from the Natural Resources Wales website or other form as agreed in writing by Natural Resources Wales	n/a	Area Office	n/a

## 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>

<b>(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:</b>	
<b>To be notified within 24 hours</b>	
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

### Part C - Malfunction or Breakdown of LCP abatement equipment

Permit Number	
Name of operator	
Location of Facility	
LCP Number	
Malfunction or breakdown	
Date of malfunction or breakdown	

# Schedule 6 - Interpretation

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

“*Air Quality Risk Assessment*” has the meaning given in Annex D of IED Compliance Protocol for Utility Boilers and Gas Turbines.

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

“*authorised officer*” means any person authorised by 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 I to Directive 2008/98/EC of the European Parliament and of the Council on Waste.

“*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..

“*emissions to land*” includes emissions to groundwater.

“*energy efficiency*” the ISO base load net plant efficiency means the performance value established by acceptance testing following improvements made to the plant that could affect the efficiency.

“*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.

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

“*hazardous property*” has the meaning in Annex III of the Waste Framework Directive

“*hazardous waste*” has the meaning given in the Hazardous Waste (Wales) Regulations 2005 (as amended)

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

“*large combustion plant*” or “*LCP*” is a combustion plant or group of combustion plants discharging waste gases through a common windshied or stack, where the total thermal input is 50 MW or more, based on net calorific value. The calculation of thermal input, excludes individual combustion plants with a rated thermal input below 15MW.

“*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.

“*National Emission Reduction Plan*” (NERP) is the plan issued by Defra in accordance with Article 4.6 of the Large Combustion Plants Directive and associated guidance.

“*NERP Register*” means the register maintained by Natural Resources Wales in accordance with regulation 6(1) of the Large Combustion Plants (National Emission Reduction Plan) Regulations 2007.

“*ncv*” means net calorific value.

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

“*PAH*” in respect to emissions to air - means Anthracene, Fluorene, Napthalene, Phenanthrene, Benzo[ghi]perylene, Accenaphthylene, Acenaphthene, Fluoranthene, Pyrene, Chrysene, Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, , Dibenzo[ah]anthracene, Indo[1,2,3-cd]pyrene in any combination or singly, expressed as Benzo[a]pyrene (B[a]P)

“*PAH*” in respect of emissions to water comprises Fluoranthene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-cd]pyrene and Benzo[g,h,i]perylene

“*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 II to Directive 2008/98/EC of the European Parliament and of the Council on Waste.

“*SI*” means site inspector

“*TNP Register*” means the register maintained by the Environment Agency in accordance with regulation 4 of The Large Combustion Plants (Transitional National Plan) Regulations 2015 SI 2015 No. 1973.

“*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.

“*Waste Framework Directive*” or “*WFD*” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste

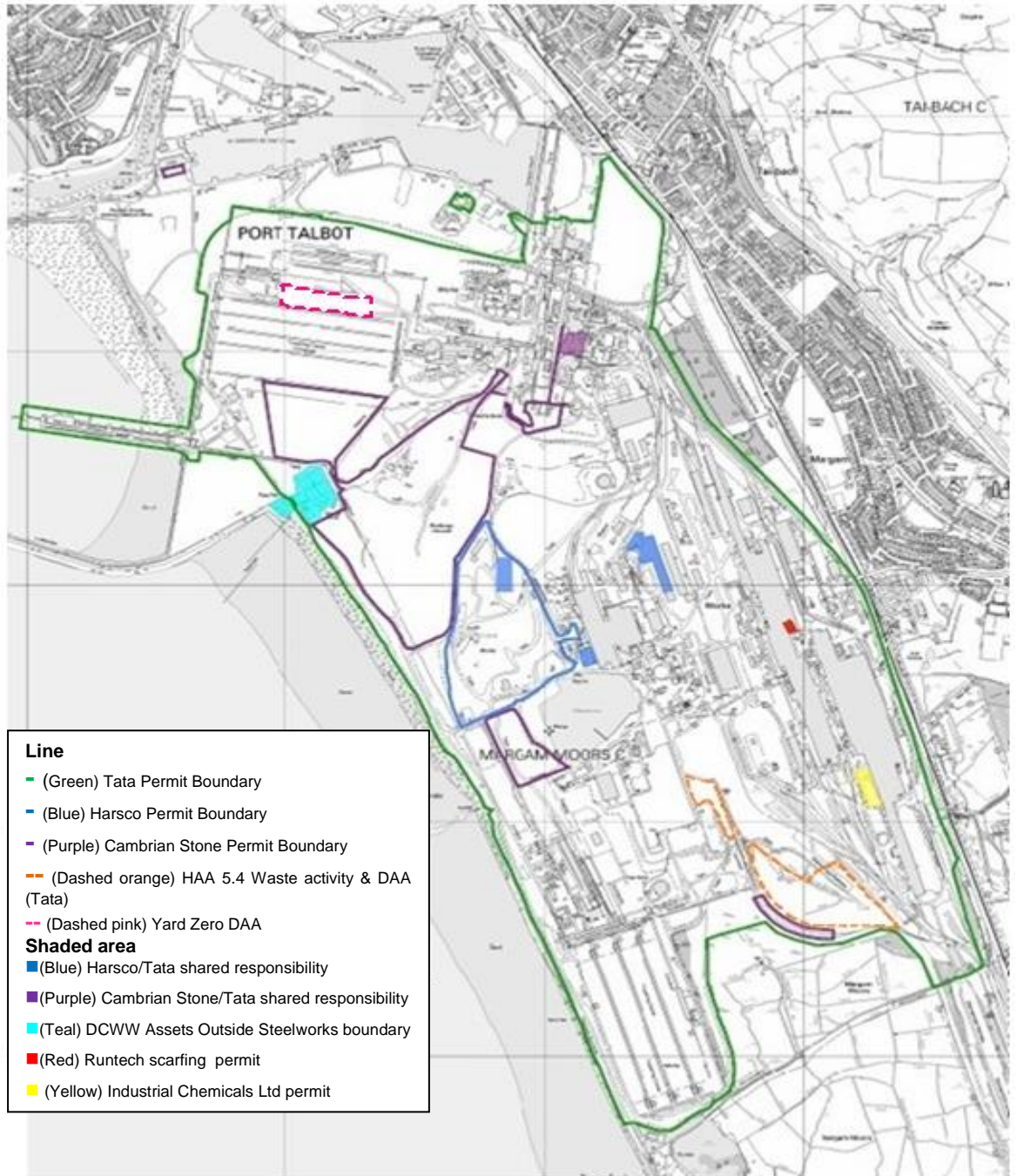
“*year*” means calendar year ending 31 December.

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:

- (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, except in the case of coke oven underfiring where the reference oxygen level is 5% dry and sinter plant emissions at 17%,
- (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 correction for water vapour content.
- (c) “*assessment year*” means any complete calendar year except that the first assessment year for the purposes of this permit shall run from 1 October 2006 until 31<sup>st</sup> December 2007
- (d) “*CEN*” means Comité Européen de Normalisation
- (e) “*central office*” means an address for reporting forms for the attention of Natural Resources Wales head office staff, which has been separately notified to the operator.
- (f) “*operational hours*” of an LCP is the time spent between start up and shut down of the LCP.

# Schedule 7 - Site plan



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END OF PERMIT

# Annex to conditions – Derogation under Industrial Emissions Directive

Derogation under Article 15(4) of Industrial Emissions Directive

## DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions

<p>Operating techniques</p>	<p>We have considered the Operator's proposed techniques and its comparison against other relevant techniques as described in the relevant BAT reference note. Our full reasoning is given in our decision document that accompanies the permit determination.</p> <p>The proposed techniques will result in emissions for which the appropriate emission limits are less stringent than those associated with the best available techniques as described in BAT conclusions.</p> <p>We have considered the operators justification for departure from the guidance and accept it in the following respects and for the following reasons;</p> <p>The achievement of emission levels associated with the best available techniques as described in BAT conclusions would lead to disproportionately higher costs compared to the environmental benefits due to:</p> <ul style="list-style-type: none"> <li>a) the geographical location or the local environmental conditions of the installation concerned; or</li> <li>b) the technical characteristics of the installation concerned.</li> </ul> <p>The provisions of Article 15(4) of the Industrial Emissions Directive are applicable to the emissions from the secondary dedust in the sinter plant, the desulphurisation of coke oven gas and the suspended solids in the aqueous emissions to the marine environment of Swansea Bay. Details of the assessment on the applicability of Article 15(4) can be found in the decision document for this variation.</p> <p>The current limits in the permit will remain for particulate matter from secondary dedust in the Sinter plant (emission point A2) until 31<sup>st</sup> October 2020.</p> <p>The current limits for sulphur dioxide content of Coke Oven Gas in the permit will remain until 31<sup>st</sup> October 2024.</p> <p>The current limits in the permit for suspended solids in the effluent emitted via water emission point W1 will remain for the lifetime of the plant; unless evidence emerges that an environmental benefit can be achieved by reducing the current load into the receiving water. The possible building of the Swansea bay tidal lagoon may have an impact on this. This will need to be assessed during the implementation of the next Iron and Steel BRef.</p>
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	<b>BAT conclusion</b>	<b>Associated BAT-AEL</b>	<b>Derogation until</b>	<b>ELV during derogation period</b>
	26	30 mg/m <sup>3</sup> for dust (electrostatic precipitator) 10 mg/m <sup>3</sup> for dust (bag filter plant)	31 <sup>st</sup> October 2020	50 mg/m <sup>3</sup>
	48	1000mg/m <sup>3</sup> for hydrogen sulphide (this is not an AEL)	31 <sup>st</sup> October 2024	No ELV
	49	500 mg/m <sup>3</sup> for sulphur dioxide	31 <sup>st</sup> October 2024	250 mg/m <sup>3</sup> (lean) 1000 mg/m <sup>3</sup> (rich)
		20 mg/m <sup>3</sup> for dust	31 <sup>st</sup> October 2024	100 mg/m <sup>3</sup>
	Suspended Solids associated with any aqueous effluent		derogated until next BREF review	150 mg/m <sup>3</sup>