Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

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 the 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. Lump ore and pellets are fed direct to the blast furnace and BOS plants. The finer materials stockpiled are then blended together into a sinter plant feed along with reverts and other fine recyclable material. This blend is laid down in "beds" to allow good mixing of material.

Sinter production
Sinter feed is then recovered from the beds by barrel reclaimers and a blend of sinter bed material, fluxes, coke breeze and limestone is fed onto a travelling grate at the Sinter Plant where it is heated to a high temperature in the region of 1300 °C. Air is drawn through the bed of heated material and the flame front fuses the fine material into a clinker -"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 on site. Here the coal 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 coke cycle, the coke is pushed out of the oven into a rail car and the red hot coke 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.

Gas is driven off from the ovens during the coking cycle and is cooled, cleaned and some by-products are removed. The by-products are collected and either re-used or sold. Clean gas is recycled within the site as fuel and excess gas may be vented through a flarestack and ignited. The effluent from the by-products plant is first treated with alkali to release ammonia which is incinerated and completion of the treatment process is carried out by a biological effluent treatment process. The treated effluent and cooling water is discharged into the site effluent collection system where it mixes with the other effluents produced within the Works. The combined site effluent is discharge through a long sea outfall into Swansea Bay. Additional coke is imported.

Granulated Coal Injection Plant
Coal is delivered to the department mainly by ship via a boom stacker to one of the stock yards, we also take 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 then crushed and dried in an inert atmosphere to temperatures in excess of 100 degrees to reduce the moisture content to less than 1.5%.
The hot gases used to dry the coal is generated from a duel fuel burner, Blast furnace gas is our primary fuel with natural gas as a backup should blast furnace gas 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 the furnace 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 generally 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 iron produced in the furnace is molten, both iron and slag fall to the hearth of the furnace 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 approx. 320 tonne. On arrival at the BOS plant the molten iron in the torpedo is poured into a charging ladle approx. 250 tonne. 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 through injecting magnesium and lime into the iron. The slag 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 to the heat and oxygen is used to convert the iron into steel. Iron charging fume and secondary fume from the BOS heat is extracted through bag filtration plant prior to discharge. The oxygen is blown into the converter at supersonic velocity and the process is 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 of 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 egassers or CAS 1 and CAS 2 composition adjustment sealed treatmentsall 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 (currently Harsco Metals Group Limited). Slabs can be sold on the open market, transferred to Llanwern Hot Mill in Newport, or hot or cold connected to the Hot

Rolling Mill on the Port Talbot site. 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. 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 in a continuous annealing plant 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.

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 internal landfills. The primary recycling streams, by products and wastes are identified and quantified in the landfill permits.

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 water for the western part of the site along with the Frwdwyllt abstraction. 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. The drainage from the nearby Margam Moors (Point A) is either collected or used as process 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.

Status log of the permit		
Description	**Date**	**Comments**
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
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_{10})
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

Status log of the permit		
Description	**Date**	**Comments**
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.

Other Part A installation permits relating to this installation		
Operator	**Permit number**	**Date of issue**
Harsco Metals Group Ltd	EPR/BP3635MR	30/10/2006
Cambrian Stone Ltd	EPR/BL5636IF	24/12/2002
Tata Steel UK Ltd (Hazardous landfill)	EPR/BW2692IM	17/12/2004
Tata Steel UK Ltd (Non-hazardous landfill)	EPR/BV7311IE	17/12/2004

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number
EPR/BL7108IM

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BL7108IM/V015 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.

Name	Date
	**08 February 2016**

Eirian Macdonald

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 at 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 and EPR/BP3635MR, issued to Harsco Metals Group Ltd, 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").

2.2 The site

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

2.3 Operating techniques

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

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

2.3.2 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 table S2.2; 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, 3.8, 3.8A and S3.8B.

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 For the activities referenced in schedule 1, table S1.1. Where a substance is specified in schedule 3 tables S3.8, S3.8A and S3.8B 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, 3.8, 3.8A and S3.8B 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,

(b) surface water or groundwater specified in tables S3.8, S3.8A and S3.8B;

(c) 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 continuous), 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, S3.8A and S3.8B, 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, tables 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 10th 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_{10} that exceeds 50 µg/m^3 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_{10} that exceeds 50 µg/m^3 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_{10} exceeded 50 µg/m^3 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_{10} that exceeds 50 µg/m^3 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, if during that quarter the total amount accepted exceeds 100 tonnes of non-hazardous waste or 10 tonnes of hazardous waste.

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).

4.3 Notifications

4.3.1 In the event:

(a) 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) 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) 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) 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 “immediately”, 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 / Associated activity	**Description of specified activity and WFD Annex I and II operations**	**Limits of specified activity and waste types**
1.1 A(1)(a)	Power Station boilers (A50, A51, A52A, A52B, A53, A62, A68 and A69) LCP 73 (A62); LCP 337 (A50); LCP 338 (A53); LCP 339 (A51); LCP 340 (A52A & A52B); LCP 425 (A68) LCP 426 (A69)	Generating power (steam and electricity) from indigenous fuels (BFG, BOSG & COG) as well as natural gas and heavy fuel oil. 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. 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. From receipt of raw materials, to discharge of exhaust gases, and the generation of electricity.
	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)	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)	Sintering	Preparing iron ore, recycled iron oxides and associated raw materials to produce sinter
2.1 A(1)(b)	2 Blast Furnace 2 BOS Vessels / Secondary Steelmaking 3 Continuous Casting machines	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
2.1 A(1)(c)	Hot Rolling Mill	Rolling hot slabs into rolled products for sale or further processing
2.1 A(1)(d)	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.	Receipt of molten iron to the despatch of molten desulphurised iron.
2.3 A (1) (a)	Pickling line	Hydrochloric acid removal of ferrous oxide scale from hot rolled coil prior to cold rolling
5.3 A(1)(a)(i)	Aqueous Effluent Treatment. Coke Oven effluent	Collecting, treating and separation of the aqueous effluent produced by the installation
5.3 A(1)(a) (ii)	Aqueous Effluent Treatment	Collecting, treating and separation of the aqueous effluent produced by the installation
3.5 B (b)(iii)	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 / Associated activity	**Description of specified activity and WFD Annex I and II operations**	**Limits of specified activity and waste types**
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 S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Operating techniques	Operating techniques have been consolidated in a separate document referenced *'Port Talbot Steelworks operating techniques'.*	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 *on industrial emissions for iron and steel production.*	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

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC 1	The operator shall submit, for approval by Natural Resources Wales, a report setting out progress to achieving the BAT conclusion AELs where BAT is currently not achieved, but will be achieved by March 8th 2016. The report shall include, but not be limited to, the following: 1) Current performance against the BATc AEL. 2) Methodology for reaching the AELs. 3) Associated targets / timelines for reaching compliance by 8th March 2016. 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.	Progress reports to be submitted quarterly

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC 2	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: 1) Current performance against the BATc AEL. 2) Methodology for reaching the AELs. 3) Associated targets / timelines for reaching compliance by the dates specified in the Annex to this permit. The report shall address the following BATc: 26, 48 and 49.	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.	31st August 2015
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 30th June 2020.	31st December 2015
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.	31st August 2015
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.	29th January 2016
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.	31st August 2015
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.	Within 3 months of permit issue
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): 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	3 months before commencement of activity.
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.	XX/02/17

Table S1.4 Pre-operational measures for future development		
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 **six months before** 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 **three months before** ''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"** **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.**	**"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.**
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 [a]**
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 [b]
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	
Waste code code	**Description**
06	**WASTES FROM INORGANIC CHEMICAL PROCESSES**
06 02	wastes from the MFSU of bases
06 02 01*	**calcium hydroxide**
10	**WASTES FROM THERMAL PROCESSES**
10 01	**wastes from power stations and other combustion plants (except 19)**
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
10 01 26	wastes from cooling-water treatment
10 01 99	wastes not otherwise specified
10 02	**wastes from the iron and steel industry**
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

Table S2.2 Permitted waste types	
Waste code code	**Description**
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
10 03	**wastes from aluminium thermal metallurgy**
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
10 04	**wastes from lead thermal metallurgy**
10 04 01*	slags from primary and secondary production
10 04 02*	dross and skimmings from primary and secondary production
10 04 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
10 05	**wastes from zinc thermal metallurgy**
10 05 01	slags from primary and secondary production
10 05 03*	flue-gas dust

Table S2.2 Permitted waste types	
Waste code code	**Description**
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
10 06	**wastes from copper thermal metallurgy**
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
10 07	**wastes from silver, gold and platinum thermal metallurgy**
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
10 08	**wastes from other non-ferrous thermal metallurgy**
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
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
10 09	**wastes from casting of ferrous pieces**
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

Table S2.2 Permitted waste types	
Waste code code	**Description**
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
10 10	**wastes from casting of non-ferrous pieces**
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
10 10 99	wastes not otherwise specified
11 01	**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)**
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
11 02	**wastes from non-ferrous hydrometallurgical processes**
11 02 02*	sludges from zinc hydrometallurgy (including jarosite, goethite)
11 02 03	wastes from the production of anodes for aqueous electrolytical processes

Table S2.2 Permitted waste types	
Waste code code	**Description**
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
11 03	**sludges and solids from tempering processes**
11 03 01*	wastes containing cyanide
11 03 02*	other wastes
11 05	**wastes from hot galvanising processes**
11 05 01	hard zinc
11 05 02	zinc ash
11 05 03*	solid wastes from gas treatment
11 05 04*	spent flux
12	**WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS**
12 01	**wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01 13	welding wastes
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
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 04	**Metals (including their alloys)**
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

Schedule 3 - Emissions and monitoring

Table S3 Emission points into air

Emission point description	Source	Height (metres)	Location of emission point on the site plan of environmental release points (reference CAD-0000000000022)
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
Secondary fume extraction stack Centre	BOS Plant	20	A15
Secondary fume extraction stack South	BOS Plant	20	A16
RH degasser stack	BOS Plant	33	A17
RD-KTB degasser stack	BOS Plant	51	A18
Cold Mill oil mist vent	Cold Mill	24	A19
No release point has been allocated reference A20			
Pickle line scrubber fume extraction North	Cold Mill	46	A21
Pickle line scrubber fume extraction South	Cold Mill	46	A22
Stretch leveller fume extraction stack	Cold Mill	21	A23
No release point has been allocated reference A29			
Ebner furnace stack North	Cold Mill	31	A30
Blast furnace gas flare stack 1	Energy – Distribution	35	A33

Blast furnace gas Main no. 4 bleeder stack	Energy – Distribution	73	A33A
Blast furnace gas Main no. 5 bleeder stack	Energy – Distribution	73	A33B
Blast furnace gas flare stack 2	Energy – Distribution	54	A33C
Reheat furnace duct North	Hot Mill	120	A34A**
Reheat furnace duct South	Hot Mill	120	A34B**
Coal injection “Process Plant Dryer Stack 1”	Blast Furnaces	27	A35
Coal injection “Process Plant Dryer Stack 2”	Blast Furnaces	27	A36
Fluidised bed dryer 1 bag filter plant stack	Blast Furnaces	30	A37
Fluidised bed dryer 2 bag filter plant stack	Blast Furnaces	30	A38
Number 1 New Mill Stack (GCI)	Blast Furnaces	54	A39
No release points have been allocated referenceA40 & A41			
Silo 4 filter vent A -	-	44	A42
Silo 4 filter vent B -	-	44	A43
Silo 5 filter vent	Blast Furnaces	44	A44
No release point has been allocated reference A45			
CAPL furnace stack	Cold Mill – CAPL	57	A46
CAPL scrubber stack	Cold Mill – CAPL	24	A47
CAPL temper mill fume extraction stack	Cold Mill – CAPL	20	A48
CAPL HNX vents	Cold Mill – CAPL	46	A49
Service boilers 4&5 stack	Energy – Generation	68	A50
Boiler 5 (Margam A) stack	Energy – Generation	32	A51
Boiler 6 (Margam C) stack	Energy – Generation	121	A52A
Boiler 7 (Margam C) stack	Energy – Generation	121	A52B
Mitchell boiler (Margam B) stack	Energy – Generation	37	A53
Morfa Coke oven batteries	Coke Ovens	15	A54
Morfa main stack	Coke Ovens	127	A55
Ministerstein (3 flues)	Coke Ovens	20	A56
Ammonia incinerator	Coke Ovens	50	A57
Secondary coal crusher stack	Coke Ovens	11	A58
Coke oven gas triple flare stack	Coke Ovens	65	A59
Quench tower (old)	Coke Ovens	35	A60A
Quench tower (new)	Coke Ovens	40	A60B
Collecting main bleeders	Coke Ovens	30	A61
Boiler 3	Energy – Generation	33	A62 (SS 7698 8847)
CASOB/Desulph fume extraction plant	BOS plant	54	A63 *
Concaster steam vents	BOS plant	-	A64A -F
Blast furnace 4 ferrous stock house filter plant stack	Blast furnaces	-	A65**
BOS OG heat recovery – Super Heater	BOS Plant	26	A66**
Coke oven gas flare stack	Coke Ovens	50	A67**
Boiler 8 stack	Energy-Generation	80	A68
Boiler 9 stack	Energy-Generation	80	A69

Area, volume or non point source releases			
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		
Blast furnace stock house (Hiline coke; furnace 5)	Blast furnaces		
Blast furnace 4 dust catcher	Blast furnaces		
Blast furnace 5 dust catcher	Blast furnaces		
Benzole storage	Coke Ovens		
Coke ovens effluent treatments	Coke Ovens		

Schedule 3(a) – Emissions and monitoring

Emissions until 31st December 2015

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^3	Hourly average	Quarterly	BS EN 14791
	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		2 ng/m^3	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_2 expressed as NO_2)		275 mg/m^3	Hourly average	Quarterly	BS EN 14792
	Particulate matter		115 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
	Chlorides		-	Spot	6 monthly	BS EN 1911
	Volatile Organic Compounds		-	Spot	6 monthly	BS EN 12619
	Fluorides		-	Spot	6 monthly	BS ISO 15713
	Lead		-	Spot	6 monthly	BS EN 14385
	PAHs (as B[a]P)		-	Spot	6 monthly	BS ISO 11338
	Carbon monoxide		-	Spot	Quarterly	BS EN 15058
A2	Particulate matter	Sinter plant (deduster stack)	50 mg/m^3	Daily mean	Continuous measurement	BS EN 14181

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**
A3	-	Sinter plant (Mixing and rolling drum stack)	-	-	-	-

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**
A54	DLCF (Door Leakage Control Factor)	Morfa coke oven batteries	98.5% (min) 98.0% (min daily)	Quarterly rolling mean	Note 1 and 2	BCRA
	TLCF (Top Leakage Control Factor)		99.0% (min) 98.5% (min daily)	Quarterly rolling mean	Note 1 and 2	BCRA
	PEF(Pushing Emission Factor)		0.25 (max) 0.4 (max any oven daily)	Quarterly rolling mean	Weekly	BCRA
	MEF (Mass Emission Factor)		0.25 (max) 0.4 (max any oven daily)	Quarterly rolling mean	Weekly	BCRA
A55	Visible smoke	Morfa main stack	Ringelmann 1	30 mins (Note 3)	Continuous measurement	BS2742:1969
	Sulphur dioxide		250 mg/m^3 (lean) 1000 mg/m^3 (rich)	Hourly average	Six monthly (minimum of 2 months between monitoring)	BS EN 14791

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**
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		1600 mg/m^3 (lean) 4000 mg/m^3 (rich)	Hourly average	Six monthly (minimum of 2 months between monitoring)	BS EN 14792
	Particulate matter		100 mg/m^3	Spot	Annually	BS EN 13284-1
	Carbon monoxide		-	Spot	6 monthly	BS EN 15058
A56	Visible smoke	Minister stein (3 flues)	No visible releases	-	-	-
	Particulate matter		50 mg/m^3	Spot (hourly)	Quarterly (minimum of 4 weeks between monitoring)	BS EN 13284-1
A57	Visible smoke	Ammonia incinerator	No visible releases	-	-	-
	Sulphur dioxide		2000 mg/m^3	Hourly average	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		200 mg/m^3	Hourly average	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14792
A60B	Particulate matter	Quench tower (new)	-	-	-	-
A61	-	Collecting main bleeders	-	-	-	-
A67	-	Gas flare stack	-	-	-	-

Note 1: All operating ovens shall be monitored at least once in every quarter for DLCFs, TLCFs, MEFs and PEFs unless carbonising times prevent daylight assessment. If the results indicate exceedence of a limit then efforts shall be made to monitor that same oven at the next opportunity and thereafter until compliance is attained. Assessment of MEF and PEF shall be based on a minimum observation of 8 ovens per week.

Note 2: For DLCF and TLCF every working oven is monitored every weekday (Monday to Friday) to produce a daily DLCF and a daily TLCF.

Note 3: 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.

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
Blast furnace 4						
A4	-	Bell-less top	-	-	-	-
A4A	-	Bleeders	-	-	-	-
A6	Sulphur dioxide	Hot blast stove stacks	200 mg/m^3	Hourly mean	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		100 mg/m^3	Hourly mean	Quarterly	BS EN 14792
	Particulate matter		10 mg/m^3	Daily mean	Quarterly	BS EN 13284-1
A8A	Particulate matter	Casthouse fume extraction North	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A8B	Particulate matter	Casthouse fume extraction South	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A65	Particulate matter	Ferrous stock house filter plant stack	10 mg/m^3	Hourly mean	Annual	BS EN 13284-1
Blast furnace 5						
A5	-	Bell-less top	-	-	-	-
A5A	-	Bleeders	-	-	-	-
A7	Sulphur dioxide	Hot blast stove stacks	370 mg/m^3	Hourly mean	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		105 mg/m^3	Hourly mean	Quarterly	BS EN 14792
	Particulate matter		50 mg/m^3	Spot	Annually	BS EN 13284-1
A9	Particulate matter	Casthouse fume extraction	25 mg/m^3	Hourly mean	Continuous measurement	BS EN 14181
Blast furnace associated emissions to air						

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**
A35	Particulate matter	Coal injection "Process Plant Dryer Stack 1"	25 mg/m^3	Spot	Annually	BS EN 13284-1
A36	Particulate matter	Coal injection "Process Plant Dryer Stack 2"	-	-	-	-
A37	Particulate matter	Fluidised bed dryer 1 bag filter plant stack	25 mg/m^3	Spot	Annually	BS EN 13284-1
A38	Particulate matter	Fluidised bed dryer 2 bag filter plant stack	25 mg/m^3	Spot	Annually	BS EN 13284-1
A39	Sulphur dioxide	Number 1 New Mill Stack (GCI)	260 mg/m^3	Hourly mean	6 monthly	BS EN 14791
	Oxides of nitrogen		115 mg/m^3			BS EN 14792
	Carbon monoxide		-			BS EN 15058
	Particulates		25 mg/m^3			BS EN 13284-1
A42	Particulate matter	Silo 4 filter vent A	-	-	-	-
A43	Particulate matter	Silo 4 filter vent B	-	-	-	-
A44	Particulate matter	Silo 5 filter vent	-	-	-	-
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	-	-	-	-

Note 1: For quarterly monitoring there will be a minimum of 4 weeks between monitoring.

Table S3.4 Basic oxygen steelmaking and casting 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**
A10	Particulate matter	Iron desulphurisation/hot metal pouring fume extraction plant stack	50 mg/m^3	Hourly mean	Continuous measurement	BS EN 14181
A10A	Particulate matter	Hot metal fume extraction number 2	50 mg/m^3	Hourly mean	Continuous measurement	BS EN 14181
A11	Particulate matter	Lime plant dust extraction stack	50 mg/m^3	Spot (hourly)	Annually	BS EN 13284-1
A12	Particulate matter	BOS convertor 1 primary gas cleaning stack	115 mg/m^3	-	-	-
A13	Particulate matter	BOS convertor 2 primary gas cleaning stack	115 mg/m^3	-	-	-
A14	Particulate matter	Secondary fume extraction stack north	50 mg/m^3	Hourly mean	Continuous measurement	BS EN 14181
A15	Particulate matter	Secondary fume extraction stack centre	50 mg/m^3	Hourly mean	Continuous measurement	BS EN 14181
A16	Particulate matter	Secondary fume extraction stack south	50 mg/m^3	Hourly mean	Continuous measurement	BS EN 14181
A17	-	RH degasser stack	-	-	-	-
A18	Particulate matter	RD-KTB degasser stack	25 mg/m^3	-	-	-
A63	Particulate matter	CAS-OB/Desulph fume extraction plant	25 mg/m^3	Hourly mean	Continuous measurement	BS EN 14181

Table S3.4 Basic oxygen steelmaking and casting 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**
A64A-F	-	Concaster steam vents	-	-	-	-

Table S3.5 Hot 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**
A34A	Sulphur dioxide	Reheat furnace duct north	1400 mg/m^3	Hourly average	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		1800 mg/m^3	Hourly average	Quarterly	BS EN 14792
	Particulate matter		Only if burning COG	Spot (hourly)	Annually	BS EN 13284-1
A34B	Sulphur dioxide	Reheat furnace duct south	1400 mg/m^3	Hourly average	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		1800 mg/m^3	Hourly average	Quarterly	BS EN 14792
	Particulate matter		Only if burning COG	Spot (hourly)	Annually	BS EN 13284-1

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 mist vent	-	-	-	

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**
A21	Chlorides (as HCl)	Pickle line scrubber fume extraction north	5 mg/m^3	Spot (hourly)	Quarterly	BS EN 1911
A22	Chlorides (as HCl)	Pickle line scrubber fume extraction south	5 mg/m^3	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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
A50	Sulphur dioxide	Service boilers 4 and 5 stack	800mg/m^3 (BFG, COG, BOS & NG) 1700 mg/m^3 (HFO)	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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		300 mg/m^3 (BFG, COG, BOS & NG) 450 mg/m^3 (HFO)	Monthly mean	Continuous measurement	BS EN 14181
	Particulate matter		50 mg/m^3 (BFG, COG,BOS & NG) No limit on HFO[1]	Monthly mean	Continuous measurement	BS EN 14181
	Vanadium		-	Spot	Annually	BS EN 14385
A51	Sulphur dioxide	Boiler 5 (Margam A)	800 mg/m^3 (BFG, COG,BOS & NG) 1700 mg/m^3 (HFO)	Spot Hourly	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		300 mg/m^3 (BFG, COG,BOS & NG) 450 mg/m^3 (HFO)	Spot Hourly	Quarterly	BS EN 14792
	Particulate matter		50 mg/m^3 (BFG, COG,BOS & NG) No limit on HFO[1]	Monthly mean	Continuous	BS EN 14181
	Vanadium		-	Spot	Annually	BS EN 14385
A52A	Sulphur dioxide	Boiler 6 (Margam C)	800 mg/m^3 (BFG, COG,BOS & NG) 1700 mg/m^3 (HFO)	Monthly mean	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		300 mg/m^3 (BFG, COG,BOS & NG) 450 mg/m^3 (HFO	Monthly mean	Continuous	BS EN 14181
	Particulate matter		50 (mm) (BFG, COG & BOS) No limit on HFO[1]	Monthly mean	Continuous	BS EN 14181
	Vanadium		-	Spot	Annually	BS EN 14385

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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
A52B	Sulphur dioxide	Boiler 7 (Margam C)	800 mg/m^3 (BFG, COG,BOS & NG) 1700 mg/m^3 (HFO)	Monthly mean	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO2 expressed as NO2)		300 mg/m^3 (BFG, COG,BOS & NG) 450 mg/m^3 (HFO	Monthly mean	Continuous	BS EN 14181
	Particulate matter		50 mg/m^3 (BFG, COG,BOS & NG) No limit on HFO[1]	Monthly mean	Continuous	BS EN 14181
	Vanadium		-	Spot	Annually	BS EN 14385
A53	Sulphur dioxide	Mitchell boiler (Margam B)	800 (BFG, COG,BOS & NG) 1700 (HFO)	Spot Hourly	Quarterly	BS EN 14181
	Oxides of Nitrogen (NO and NO2 expressed as NO2)		300 mg/m^3 (BFG, COG,BOS & NG) 450 mg/m^3 (HFO)	Spot Hourly	Quarterly	BS EN 14181
	Particulate matter		50 (BFG, COG,BOS & NG) No limit on HFO[1]	Monthly mean	Continuous	BS EN 14181
	Vanadium		-	Spot	Annually	BS EN 14385
A62	Sulphur dioxide	Boiler 3	400 mg/m3	Monthly mean	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO2 expressed as NO2)		200 mg/m3	Monthly mean	Continuous	BS EN 14181
	Particulate matter		30 mg/m3	Monthly mean	Continuous	BS EN 14181
	Vanadium		-	Spot	Annually	BS EN 14385

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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
A66	Sulphur dioxide	BOS OG heat recovery – super heater (Natural gas and BFG)	200 mg/m^3	Hourly average	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		100 mg/m^3 Note 2	Hourly average	Quarterly	BS EN 14792
	Particulate matter		10 mg/m^3	Spot (hourly)	Annually	BS EN 13284-1
	Carbon monoxide		50 mg/m^3 Note 2	Hourly average	Quarterly	BS EN 15058

[1] Monitoring results to be reported when burning HFO.

For sulphur dioxide: 97% of all the 48 hourly means in a calendar year shall not exceed 110% of the emission limit values (880 mg/m^3 for release points A50, A52A and A52B).

For particulates: 97% of all the 48 hourly means in a calendar year shall not exceed 110% of the emission limit values (55 mg/m^3 for release points A50, A51, A52A, A52B and A53); the periods shall not include start up or shut down.

For oxides of nitrogen: 95% of all the 48 hourly means in a calendar year shall not exceed 110% of the emission limit values (330 mg/m^3 for release points A50, A52A, and A52B).

For release point A62, 95% of all the validated hourly average values over the year shall not exceed 200% of the ELVs set (800 mg/m^3 for sulphur dioxide, 400 mg/m^3 for oxides of nitrogen and 60 mg/m^3 for particulates); the periods do not include start up and shut down.

Note 2: Emission Limit Values to be proposed to NRW for agreement as part of IC 9.

Table 3.8A: Emission limits into water (Long sea outfall)			
Parameter	**Release point number**		
	W1		**Monitoring Frequency**
Suspended solids	27,500 kg/day	150 mg/l (mm)	Daily
Oil and grease	3,150 kg/day	25 mg/l (mm)	Daily
Free cyanide	45 kg/day	0.2 mg/l (mm)	Daily
Ammoniacal nitrogen	4,000 kg/day	27.5 mg/l (mm)	Daily
Phenol	350 kg/day	2.0 mg/l (mm)	Daily
Soluble zinc	2,100 kg/month	2.5 mg/l (mm)	Daily
Soluble lead	300 kg/month	0.3 mg/l (mm)	Daily

Soluble chromium	200 kg/month	0.2 mg/l (mm)	Daily
Soluble iron	-	-	Daily
PAHs (as B[a]P)	250 kg/month	1.0 mg/l	Monthly
Flow	6,000 m^3/hour		Continuous
	-		
Temperature	40°C (daily mean)		Continuous
	45°C (hourly maximum)		
pH (maximum)	10		Continuous
pH (minimum)	6		

Table 3.8B: Emission limits into water

Parameter	**Release point number**							
	W2	**Monitoring frequency**	**W3**	**Monitoring frequency**	**W4**	**Monitoring frequency**	**W5**	**Monitoring frequency**
Suspended solids	-	-	200 mg/l	24 hour average from beginning of discharge	-	-	20 mg/l*	Background daily Discharge monthly
Oil and grease	-	-	20 mg/l	24 hour average from beginning of discharge	-	-	-	-
Flow	-	-	-	-	-	-	16,000m 3/hr	Continuous
	-	-	-	-	-	-	350,000 m3/day	
Temperature	-	-	-	-	-	-	36°C	Continuous
	-	-	-	-	-	-		

*shall not exceed the background concentration by the figure indicated.

Table S3.9A Annual limits		
Substance	**Medium**	**Limit (including unit)**
Particulate matter (Until 2015)	Air	LCP NERP Limit A50 (LCP 337), A51 (LCP 339), A52A/A52B (LCP 340) and A53 (LCP 338) to be reported individually
Sulphur dioxide (Until 2015)	Air	LCP NERP Limit A50 (LCP 337), A51 (LCP 339), A52A/A52B (LCP 340) and A53 (LCP 338) to be reported individually
Oxides of nitrogen (Until 2015)	Air	LCP NERP Limit A50 (LCP 337), A51 (LCP 339), A52A/A52B (LCP 340) and A53 (LCP 338) to be reported individually
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 SO2 and NOx 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				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
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	-	Quarterly	-	-
A record of LCPD operational and fuel dependent parameters	-	Quarterly	-	-

Schedule 3(b) – Emissions and monitoring

Emissions from 1st January 2016

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^3	Hourly average	Quarterly	BS EN 14791
	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		2 ng/m^3	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_2 expressed as NO_2)		275 mg/m^3	Hourly average	Quarterly	BS EN 14792
	Particulate matter		115 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
	Chlorides		-	Spot	6 monthly	BS EN 1911
	Volatile Organic Compounds		-	Spot	6 monthly	BS EN 12619
	Fluorides		-	Spot	6 monthly	BS ISO 15713
	Lead		-	Spot	6 monthly	BS EN 14385
	PAHs (as B[a]P)		-	Spot	6 monthly	BS ISO 11338
	Carbon monoxide		-	Spot	6 monthly	BS EN 15058
A2	Particulate matter	Sinter plant (deduster stack)	50 mg/m^3	Daily mean	Continuous measurement	BS EN 14181

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**
A3	-	Sinter plant (Mixing and rolling drum stack)	-	-	-	-

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**
A54	DLCF (Door Leakage Control Factor)	Morfa coke oven batteries	98.5% (min) 98.0% (min daily)	Quarterly rolling mean	Note 1 and 2	BCRA
	TLCF (Top Leakage Control Factor)		99.0% (min) 98.5% (min daily)	Quarterly rolling mean	Note 1 and 2	BCRA
	PEF(Pushing Emission Factor)		0.25 (max) 0.4 (max any oven daily)	Quarterly rolling mean	Weekly	BCRA
	MEF (Mass Emission Factor)		0.25 (max) 0.4 (max any oven daily)	Quarterly rolling mean	Weekly	BCRA
A55	Visible smoke	Morfa main stack	Ringelmann 1	30 mins (Note 3)	Continuous measurement	BS2742:1969
	Sulphur dioxide		250 mg/m^3 (lean) 1000 mg/m^3 (rich)	Hourly average	Six monthly (minimum of 2 months between monitoring)	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		1600 mg/m^3 (lean) 4000 mg/m^3 (rich)	Hourly average	Six monthly (minimum of 2 months between monitoring)	BS EN 14792

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**
	Particulate matter		100 mg/m^3	Spot	Annually	BS EN 13284-1
	Carbon monoxide		-	Spot	6 monthly	BS EN 15058
A56	Visible smoke	Minister stein (3 flues)	No visible releases	-	-	-
	Particulate matter		50 mg/m^3	Spot (hourly)	Quarterly (minimum of 4 weeks between monitoring)	BS EN 13284-1
A57	Visible smoke	Ammonia incinerator	No visible releases	-	-	-
	Sulphur dioxide		2000 mg/m^3	Hourly average	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		200 mg/m^3	Hourly average	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14792
A60A	-	Quench tower (old)	-	-	-	-
A60B	Particulate matter	Quench tower (new)	-	-	-	-
A61	-	Collecting main bleeders	-	-	-	-
A67	-	Gas flare stack	-	-	-	-

Note 1: All operating ovens shall be monitored at least once in every quarter for DLCFs, TLCFs, MEFs and PEFs unless carbonising times prevent daylight assessment. If the results indicate exceedence of a limit then efforts shall be made to monitor that same oven at the next opportunity and thereafter until compliance is attained. Assessment of MEF and PEF shall be based on a minimum observation of o ovens per week.

Note 2: For DLCF and TLCF every working oven is monitored every weekday (Monday to Friday) to produce a daily DLCF and a daily TLCF.

Note 3: 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.

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**
Blast furnace 4						
A4	-	Bell-less top	-	-	-	-
A4A	-	Bleeders	-	-	-	-
A6	Sulphur dioxide	Hot blast stove stacks	200 mg/m^3	Hourly mean	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		100 mg/m^3	Hourly mean	Quarterly	BS EN 14792
	Particulate matter		10 mg/m^3	Daily mean	Quarterly	BS EN 13284-1
A8A	Particulate matter	Casthouse fume extraction North	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A8B	Particulate matter	Casthouse fume extraction South	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A65	Particulate matter	Ferrous stock house filter plant stack	10 mg/m^3	Hourly mean	Annual	BS EN 13284-1
Blast furnace 5						
A5	-	Bell-less top	-	-	-	-
A5A	-	Bleeders	-	-	-	-
A7	Sulphur dioxide	Hot blast stove stacks	370 mg/m^3	Hourly mean	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		105 mg/m^3	Daily mean	Quarterly	BS EN 14792
	Particulate matter		50 mg/m^3	Spot	Annually	BS EN 13284-1
A9	Particulate matter	Casthouse fume extraction	25 mg/m^3	Hourly mean	Continuous measurement	BS EN 14181
Blast furnace associated emissions to air						
A35	Particulate matter	Coal injection “Process Plant Dryer Stack 1”	25 mg/m^3	Spot	Annually	BS EN 13284-1
A36	Particulate matter	Coal injection “Process Plant Dryer Stack 2”	-	-	-	-

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**
A37	Particulate matter	Fluidised bed dryer 1 bag filter plant stack	25 mg/m^3	Spot	Annually	BS EN 13284-1
A38	Particulate matter	Fluidised bed dryer 2 bag filter plant stack	25 mg/m^3	Spot	Annually	BS EN 13284-1
A39	Sulphur dioxide	Number 1 New Mill Stack (GCI)	260 mg/m^3	Hourly mean	6 monthly	BS EN 14791
	Oxides of nitrogen		115 mg/m^3			BS EN 14792
	Carbon monoxide		-			BS EN 15058
	Particulates		25 mg/m^3			BS EN 13284-1
A42	Particulate matter	Silo 4 filter vent A	-	-	-	-
A43	Particulate matter	Silo 4 filter vent B	-	-	-	-
A44	Particulate matter	Silo 5 filter vent	-	-	-	-
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	-	-	-	-

Note 1: For quarterly monitoring there will be a minimum of 4 weeks between monitoring.

Table S3.4 Basic oxygen steelmaking and casting 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**
A10	Particulate matter	Iron desulphurisation/hot metal pouring fume extraction plant stack	50 mg/m^3	Hourly mean	Continuous measurement	BS EN 14181

Table S3.4 Basic oxygen steelmaking and casting 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**
A10A	Particulate matter	Hot metal fume extraction number 2	50 mg/m^3	Hourly mean	Continuous measurement	BS EN 14181
A11	Particulate matter	Lime plant dust extraction stack	50 mg/m^3	Spot (hourly)	Annually	BS EN 13284-1
A12	Particulate matter	BOS convertor 1 primary gas cleaning stack	115 mg/m^3	-	-	-
A13	Particulate matter	BOS convertor 2 primary gas cleaning stack	115 mg/m^3	-	-	-
A14	Particulate matter	Secondary fume extraction stack north	50 mg/m^3	Hourly mean	Continuous measurement	BS EN 14181
A15	Particulate matter	Secondary fume extraction stack centre	50 mg/m^3	Hourly mean	Continuous measurement	BS EN 14181
A16	Particulate matter	Secondary fume extraction stack south	50 mg/m^3	Hourly mean	Continuous measurement	BS EN 14181
A17	-	RH degasser stack	-	-	-	-
A18	Particulate matter	RD-KTB degasser stack	25 mg/m^3	-	-	-
A63	Particulate matter	CAS-OB/Desulph fume extraction plant	25 mg/m^3	Hourly 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						
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**
A34A	Sulphur dioxide	Reheat furnace duct north	1400 mg/m^3	Hourly average	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		1800 mg/m^3	Hourly average	Quarterly	BS EN 14792
	Particulate matter		Only if burning COG	Spot (hourly)	Annually	BS EN 13284-1
A34B	Sulphur dioxide	Reheat furnace duct south	1400 mg/m^3	Hourly average	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		1800 mg/m^3	Hourly average	Quarterly	BS EN 14792
	Particulate matter		Only if burning COG	Spot (hourly)	Annually	BS EN 13284-1

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 north	5 mg/m^3	Spot (hourly)	Quarterly	BS EN 1911
A22	Chlorides (as HCl)	Pickle line scrubber fume extraction south	5 mg/m^3	Spot (hourly)	Quarterly	BS EN 1911
A23	-	Stretch leveller fume extraction stack	-	-	-	-

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**
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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
A50	Sulphur dioxide	Service boilers 4 and 5 stack	500 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			605 mg/m^3	Annual 95% daily mean		
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		300 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			363 mg/m^3	Annual 95% daily mean		
	Particulate matter		40 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			48 mg/m^3	Annual 95% daily mean		
	Vanadium		-	Spot	Annual	BS EN 14385
A51	Sulphur dioxide	Boiler 5 (Margam A)	800 mg/m^3	LCPD Fuel-waited ELV		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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
			968 mg/m^3	Daily limit 121% ELV	Continuous measurement	
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		300 mg/m^3	LCPD Fuel-waited ELV	Continuous measurement	BS EN 14181
			363 mg/m^3	Daily limit 121% ELV		
	Particulate matter		20 mg/m^3	LCPD Fuel-waited ELV	Continuous measurement	BS EN 14181
			24.2 mg/m^3	Daily limit 121% ELV		
	Vanadium		-	Spot	Annual	BS EN 14385
A52A	Sulphur dioxide	Boiler 6 (Margam C)	500 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			605 mg/m^3	Annual 95% daily mean		
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		300 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			363 mg/m^3	Annual 95% daily mean		
	Particulate matter		25 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			30 mg/m^3	Annual 95% daily mean		
	Vanadium		-	Spot	Annual	BS EN 14385
A52B	Sulphur dioxide	Boiler 7 (Margam C)	500 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			605 mg/m^3	Annual 95% daily mean		
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		300 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			363 mg/m^3	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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
	Particulate matter		25 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			30 mg/m^3	Annual 95% daily mean		
	Vanadium		-	Spot	Annual	BS EN 14385
A53	Sulphur dioxide	Mitchell boiler	800 mg/m^3	LCPD Fuel-waited ELV	Continuous measurement	BS EN 14181
			968 mg/m^3	Daily limit 121% ELV		
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		300 mg/m^3	LCPD Fuel-waited ELV	Continuous measurement	BS EN 14181
			363 mg/m^3	Daily limit 121% ELV		
	Particulate matter		20 mg/m^3	LCPD Fuel-waited ELV	Continuous measurement	BS EN 14181
			24.2 mg/m^3	Daily limit 121% ELV		
	Vanadium		-	Spot	Annual	BS EN 14385
A62	Sulphur dioxide	Boiler 3 LCP 73 Boiler plant fired on blast furnace gas, basic oxygen steelmaking gas, coke oven gas and natural gas	35 - 400 mg/m^3 Note 2	Calendar monthly mean	Continuous	BS EN 14181
	Sulphur dioxide		38 - 440 mg/m^3 Note 2	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Sulphur Dioxide		70 - 800 mg/m^3 Note 2	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		100 – 200 mg/m^3 Note 2	Calendar 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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		110 – 220 mg/m^3 Note 2	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		200 - 400 mg/m^3 Note 2	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Carbon monoxide		100 mg/m^3 Note 3	Calendar monthly mean	Continuous	BS EN 14181
	Carbon monoxide		110 mg/m^3 Note 3	Daily mean validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide		200 mg/m^3 Note 3	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Particulate matter		5 - 30 mg/m^3 Note 2	Calendar monthly mean	Continuous	BS EN 14181
	Particulate matter		5 - 33 mg/m^3 Note 2	Daily mean validated hourly averages	Continuous	BS EN 14181
	Particulate matter		10 - 60 mg/m^3 Note 2	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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
	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
	-		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A66	Sulphur dioxide	BOS OG heat recovery – super heater	200 mg/m^3	Hourly average	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		Note 1	Hourly average	Quarterly	BS EN 14792
	Particulate matter		10 mg/m^3	Spot (hourly)	Annually	BS EN 13284-1
	Carbon monoxide		Note 1	Hourly average	Quarterly	BS EN 15058

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
- Note 1: Emission Limit Values to be proposed to NRW for agreement as part of IC 9.
- Note 2: 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 3: emission limits for carbon monoxide only applicable when the boiler is fired on natural gas.

Table 3.8A: Emission limits into water (Long sea outfall)

Parameter	Release point number		
	W1		Monitoring Frequency
Suspended solids	27,500 kg/day	150 mg/l (mm)	Daily
Oil and grease	3,150 kg/day	25 mg/l (mm)	Daily
Free cyanide	45 kg/day	0.2 mg/l (mm)	Daily
Ammoniacal nitrogen	4,000 kg/day	27.5 mg/l (mm)	Daily
Phenol	350 kg/day	2.0 mg/l (mm)	Daily
Soluble zinc	2,100 kg/month	2.5 mg/l (mm)	Daily
Soluble lead	300 kg/month	0.3 mg/l (mm)	Daily
Soluble chromium	200 kg/month	0.2 mg/l (mm)	Daily
Soluble iron	-	-	Daily
PAHs (as B[a]P)	250 kg/month	1.0 mg/l	Monthly
Flow	6,000 m^3/hour		Continuous
	-		
Temperature	40°C (daily mean)		Continuous
	45°C (hourly maximum)		
pH (maximum)	10		Continuous
pH (minimum)	6		

Table 3.8B: Emission limits into water								
Parameter	**Release point number**							
	W2	**Monitoring frequency**	**W3**	**Monitoring frequency**	**W4**	**Monitoring frequency**	**W5**	**Monitoring frequency**
Suspended solids	-	-	200 mg/l	24 hour average from beginning of discharge	-	-	20 mg/l*	Background daily Discharge monthly
Oil and grease	-	-	20 mg/l	24 hour average from beginning of discharge	-	-	-	-
Flow	-	-	-	-	-	-	16,000m 3/hr	Continuous
	-	-	-	-	-	-	350,000 m3/day	
Temperature	-	-	-	-	-	-	36°C	Continuous
	-	-	-	-	-	-		

*shall not exceed the background concentration by the figure indicated.

Table S3.9A Annual limits		
Substance	**Medium**	**Limit (including unit)**
Particulate matter (Until 2015)	Air	LCP NERP Limit A50 (LCP 337), A51 (LCP 339), A52A/A52B (LCP 340) and A53 (LCP 338) to be reported individually
Sulphur dioxide (Until 2015)	Air	LCP NERP Limit A50 (LCP 337), A51 (LCP 339), A52A/A52B (LCP 340) and A53 (LCP 338) to be reported individually
Oxides of nitrogen (Until 2015)	Air	LCP NERP Limit A50 (LCP 337), A51 (LCP 339), A52A/A52B (LCP 340) and A53 (LCP 338) to be reported individually
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

Table S3.9A Annual limits		
Substance	**Medium**	**Limit (including unit)**
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**
Particulate Matter, Sulphur dioxide and Oxides of nitrogen	Air	Assessment year	LCP TNP Limit	Define each LCP as per the TNP Note 1
		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	
		01/06/20-30/06/20		

Note 1: Following the respective dates given in response to IC12 annual limits for LCP 337, LCP 339 and LCP 340 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 SO2 and NOx 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	-	-

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**
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	-	Quarterly	-	-
A record of LCPD operational and fuel dependent parameters	-	Quarterly	-	-

Schedule 3(c) – Emissions and monitoring

Emissions from 8th March 2016

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^3	Hourly average	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^3	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_2 expressed as NO_2)		500 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
	Particulate matter		40 mg/m^3 Note 1	Daily mean	Continuous measurement	BS EN 14181
	Mercury		0.05 mg/m^3	Spot (taken over half hour)	Annual	BS EN 14385
A2	Particulate matter	Sinter plant (deduster stack)	30 mg/m^3	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.

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**
A54	DLCF (Door Leakage Control Factor)	Morfa coke oven batteries	Note 1	Note 1	Note 1	Note 1
	TLCF (Top Leakage Control Factor)		Note 1	Note 1	Note 1	Note 1
	PEF(Pushing Emission Factor)		Note 1	Note 1	Note 1	Note 1
	MEF (Mass Emission Factor)		Note 1	Note 1	Note 1	Note 1
A55	Visible smoke	Morfa main stack	Note 1	Note 1	Note 1	Note 1
	Sulphur dioxide		500 mg/m^3	Daily mean	Six monthly (minimum of 2 months between monitoring)	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		1600 mg/m^3 (lean) 4000 mg/m^3 (rich)	Hourly mean	Six monthly (minimum of 2 months between monitoring)	BS EN 14792
	Particulate matter		20 mg/m^3 Note 2	Spot	Annually	BS EN 13284-1
A56	Visible smoke	Minister stein (3 flues)	No visible releases	-	-	-
	Particulate matter		20 mg/m^3	Spot (half hourly)	Quarterly (minimum of 4 weeks between monitoring)	BS EN 13284-1
A57	Visible smoke	Ammonia incinerator	No visible releases	-	-	-
	Sulphur dioxide		2000 mg/m^3	Hourly average	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14791

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**
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		200 mg/m^3	Hourly average	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: As agreed in response to IC3

Note 2: Only applies when the derogation for BATc 48 expires. Existing limit of 100 mg/m^3 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**
Blast furnace 4						
A4	-	Bell-less top	-	-	-	-
A4A	-	Bleeders	-	-	-	-
A6	Sulphur dioxide	Hot blast stove stacks	200 mg/m^3	Daily mean	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		100 mg/m^3	Daily mean	Quarterly	BS EN 14792
	Particulate matter		10 mg/m^3	Daily mean	Quarterly	BS EN 13284-1
A8A	Particulate matter	Casthouse fume extraction North	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181

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**
A8B	Particulate matter	Casthouse fume extraction South	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A65	Particulate matter	Ferrous stock house filter plant stack	10 mg/m^3	Hourly mean	Annual	BS EN 13284-1
Blast furnace 5						
A5	-	Bell-less top	-	-	-	-
A5A	-	Bleeders	-	-	-	-
A7	Sulphur dioxide	Hot blast stove stacks	200 mg/m^3	Daily mean	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		100 mg/m^3	Daily mean	Quarterly	BS EN 14792
	Particulate matter		10 mg/m^3	Daily mean	Quarterly	BS EN 13284-1
A9	Particulate matter	Casthouse fume extraction	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
Blast furnace associated emissions to air						
A35	Particulate matter	Coal injection “Process Plant Dryer Stack 1”	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1
A36	Particulate matter	Coal injection “Process Plant Dryer Stack 2”	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1
A37	Particulate matter	Fluidised bed dryer 1 bag filter plant stack	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1
A38	Particulate matter	Fluidised bed dryer 2 bag filter plant stack	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1
A39	Sulphur dioxide	Number 1 New Mill Stack (GCI)	260 mg/m^3	Hourly mean	6 monthly	BS EN 14791
	Oxides of nitrogen		115 mg/m^3			BS EN 14792
	Carbon monoxide		-			BS EN 15058
	Particulates		25 mg/m^3			BS EN 13284-1
A42	Particulate matter	Silo 4 filter vent A	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1
A43	Particulate matter	Silo 4 filter vent B	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1

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**
A44	Particulate matter	Silo 5 filter vent	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1
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	-	-	-	-

Note 1: For quarterly monitoring there will be a minimum of 4 weeks between monitoring

Table S3.4 Basic oxygen steelmaking and casting 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**
A10	Particulate matter	Iron desulphurisation/hot metal pouring fume extraction plant stack	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A10A	Particulate matter	Hot metal fume extraction number 2	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A11	Particulate matter	Lime plant dust extraction stack	50 mg/m^3	Spot (hourly)	Annually	BS EN 13284-1
A12	Particulate matter	BOS convertor 1 primary gas cleaning stack	115 mg/m^3	-	-	-

Table S3.4 Basic oxygen steelmaking and casting 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**
A13	Particulate matter	BOS convertor 2 primary gas cleaning stack	115 mg/m^3	-	-	-
A14	Particulate matter	Secondary fume extraction stack north	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A15	Particulate matter	Secondary fume extraction stack centre	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A16	Particulate matter	Secondary fume extraction stack south	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A17	-	RH degasser stack	-	-	-	-
A18	Particulate matter	RD-KTB degasser stack	25 mg/m^3	-	-	-
A63	Particulate matter	CAS-OB/Desulph fume extraction plant	15 mg/m^3	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						
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**
A34A	Sulphur dioxide	Reheat furnace duct north	1400 mg/m^3 Note 1. (Only if burning COG)	Hourly average	Quarterly	BS EN 14791

Table S3.5 Hot 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**
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		1800 mg/m^3	Hourly average	Quarterly	BS EN 14792
	Particulate matter		Only if burning COG	Spot (hourly)	Annually	BS EN 13284-1
A34B	Sulphur dioxide	Reheat furnace duct south	1400 mg/m^3 Note 1(Only if burning COG)	Hourly average	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		1800 mg/m^3	Hourly average	Quarterly	BS EN 14792
	Particulate matter		Only if burning COG	Spot (hourly)	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 north	5 mg/m^3	Spot (hourly)	Quarterly	BS EN 1911
A22	Chlorides (as HCl)	Pickle line scrubber fume extraction south	5 mg/m^3	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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
A50	Sulphur dioxide	Service boilers 4 and 5 stack Note 2	500 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			605 mg/m^3	Annual 95% daily mean		
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		300 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			363 mg/m^3	Annual 95% daily mean		
	Particulate matter		20 mg/m^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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
			24 mg/m^3	Annual 95% daily mean		
	Vanadium		-	Spot	Annual	BS EN 14385
A51	Sulphur dioxide	Boiler 5 (Margam A) Note 2	800 mg/m^3	LCPD Fuel-waited ELV	Continuous measurement	BS EN 14181
			968 mg/m^3	Daily limit 121% ELV		
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		300 mg/m^3	LCPD Fuel-waited ELV	Continuous measurement	BS EN 14181
			363 mg/m^3	Daily limit 121% ELV		
	Particulate matter		20 mg/m^3	LCPD Fuel-waited ELV	Continuous measurement	BS EN 14181
			24.2 mg/m^3	Daily limit 121% ELV		
	Vanadium		-	Spot	Annual	BS EN 14385
A52A	Sulphur dioxide	Boiler 6 (Margam C)	500 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			605 mg/m^3	Annual 95% daily mean		
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		300 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			363 mg/m^3	Annual 95% daily mean		
	Particulate matter		25 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			30 mg/m^3	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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
	Vanadium		-	Spot	Annual	BS EN 14385
A52B	Sulphur dioxide	Boiler 7 (Margam C)	500 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			605 mg/m^3	Annual 95% daily mean		
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		300 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			363 mg/m^3	Annual 95% daily mean		
	Particulate matter		25 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			30 mg/m^3	Annual 95% daily mean		
	Vanadium		-	Spot	Annual	BS EN 14385
A53	Sulphur dioxide	Mitchell boiler Note 2	800 mg/m^3	LCPD Fuel-waited ELV	Continuous measurement	BS EN 14181
			968 mg/m^3	Daily limit 121% ELV		
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		300 mg/m^3	LCPD Fuel-waited ELV	Continuous measurement	BS EN 14181
			363 mg/m^3	Daily limit 121% ELV		
	Particulate matter		20 mg/m^3	LCPD Fuel-waited ELV	Continuous measurement	BS EN 14181
			24.2 mg/m^3	Daily limit 121% ELV		
	Vanadium		-	Spot	Annual	BS EN 14385

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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
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^3 Note 4	Calendar monthly mean	Continuous	BS EN 14181
	Sulphur dioxide		38 - 440 mg/m^3 Note 4	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Sulphur Dioxide		70 - 800 mg/m^3 Note 4	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		100 – 200 mg/m^3 Note 4	Calendar monthly mean	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		110 – 220 mg/m^3 Note 4	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		200 - 400 mg/m^3 Note 4	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Carbon monoxide		100 mg/m^3 Note 5	Calendar monthly mean	Continuous	BS EN 14181
	Carbon monoxide		110 mg/m^3 Note 5	Daily mean validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide		200 mg/m^3 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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
	Particulate matter		5 - 30 mg/m^3 Note 4	Calendar monthly mean	Continuous	BS EN 14181
	Particulate matter		5 - 33 mg/m^3 Note 4	Daily mean validated hourly averages	Continuous	BS EN 14181
	Particulate matter		10 - 60 mg/m^3 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
	Stack gas homogeneity		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
	-		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A66	Sulphur dioxide		200 mg/m^3	Hourly average	Quarterly	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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	BOS OG heat recovery – super heater	Note 1	Hourly average	Quarterly	BS EN 14792
	Particulate matter		10 mg/m^3	Spot (hourly)	Annually	BS EN 13284-1
	Vanadium		Note 1	Hourly average	Quarterly	BS EN 15058
A68	Sulphur dioxide	Boiler 8 Note 3 LCP 425 Boiler plant fired on blast furnace gas, basic oxygen steelmaking gas, coke oven gas and natural gas	35 - 400 mg/m^3 Note 6	Calendar monthly mean	Continuous	BS EN 14181
	Sulphur dioxide		38 - 440 mg/m^3 Note 6	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Sulphur Dioxide		70 - 800 mg/m^3 Note 6	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		100 mg/m^3	Calendar monthly mean	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		110 mg/m^3	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		200 mg/m^3	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Carbon monoxide		100 mg/m^3	Calendar 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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
	Carbon monoxide		110 mg/m^3	Daily mean validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide		200 mg/m^3	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Particulate matter		5 - 30 mg/m^3 Note 6	Calendar monthly mean	Continuous	BS EN 14181
	Particulate matter		5 - 33 mg/m^3 Note 6	Daily mean validated hourly averages	Continuous	BS EN 14181
	Particulate matter		10 - 60 mg/m^3 Note 6	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

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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
	-		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A69	Sulphur dioxide	Boiler 9 Note 3 LCP 426 Boiler plant fired on blast furnace gas, basic oxygen steelmaking gas, coke oven gas and natural gas	35 - 400 mg/m^3 Note 6	Calendar monthly mean	Continuous	BS EN 14181
	Sulphur dioxide		38 - 440 mg/m^3 Note 6	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Sulphur Dioxide		70 - 800 mg/m^3 Note 6	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		100 mg/m^3	Calendar monthly mean	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		110 mg/m^3	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		200 mg/m^3	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Carbon monoxide		100 mg/m^3	Calendar 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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method or as otherwise agreed with NRW**
	Carbon monoxide		110 mg/m^3	Daily mean validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide		200 mg/m^3	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Particulate matter		5 - 30 mg/m^3 Note 6	Calendar monthly mean	Continuous	BS EN 14181
	Particulate matter		5 - 33 mg/m^3 Note 6	Daily mean validated hourly averages	Continuous	BS EN 14181
	Particulate matter		10 - 60 mg/m^3 Note 6	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
	-		-	-	-	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
- Note 1: Emission Limit Values to be proposed to NRW for agreement as part of IC 9
- All limits are normalised to 3% O_2, dry conditions, 273K
- Note 2: 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 3: Between the dates given in response to IC11b) and IC11c), Boilers 8 (A68) and 9 (A69) shall not be operated concurrently.
- 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 1 of Annex V of this directive.
- Note 5: emission limits for carbon monoxide only applicable when the boiler is fired on natural gas.
- Note 6: 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)	Ref. Period or as agreed with NRW	Monitoring frequency	Monitoring standard or method
W1	Suspended Solids	Long sea outfall	20 mg/l above W9		Weekly	BS EN 872
	Chemical Oxygen Demand		220 mg/l			BS 6068-2

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)**	**Ref. Period or as agreed with NRW**	**Monitoring frequency**	**Monitoring standard or method**
	BOD		20 mg/l	24 hour composite sample / qualified random sample		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:
	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^3/hour	Hourly	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	Visual
	Flow		-	-	-	-
	Temperature		-	-	-	-

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)**	**Ref. Period or as agreed with NRW**	**Monitoring frequency**	**Monitoring standard or method**
W4	Suspended Solids	Iron Ore Stockyard into Afan Estuary	-	-	-	-
	Oil and grease		-	-	-	-
	Flow		-	-	-	-
	Temperature		-	-	-	-
W5	Suspended Solids	Cooling Water discharge into Port Talbot Dock	20 mg/l Note 1	24 hour composite sample / qualified random sample	Background daily Discharge monthly	BS EN 872
	Oil and grease		-	-	-	-
	Flow		16,000 m^3/hr 350,000 m^3/day	24 hour period beginning 00.01	Continuous	Flow meter
	Temperature		36°C	Maximum	Continuous	Standard thermocouple
W6	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	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
	Lead		0.5 mg/l			BS 6068-2.29
	Zinc		2 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)**	**Ref. Period or as agreed with NRW**	**Monitoring frequency**	**Monitoring standard or method**
	Cyanide		0.4 mg/l			BS 6068-2.18
	Total daily volume of discharge		-	Instantaneous	Continuous	Flow meter
W8	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
	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
W9	Suspended Solids	Background concentration	mg/l	24 hour composite sample	-	BS EN 872

Note 1: Shall not exceed the background concentration by the figure indicated
Note 2: 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)**
Particulate matter (Until 2015)	Air	LCP NERP Limit A50 (LCP 337), A51 (LCP 339), A52A/A52B (LCP 340) and A53 (LCP 338) to be reported individually
Sulphur dioxide (Until 2015)	Air	LCP NERP Limit A50 (LCP 337), A51 (LCP 339), A52A/A52B (LCP 340) and A53 (LCP 338) to be reported individually
Oxides of nitrogen (Until 2015)	Air	LCP NERP Limit A50 (LCP 337), A51 (LCP 339), A52A/A52B (LCP 340) and A53 (LCP 338) to be reported individually
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

Table S3.9A Annual limits		
Substance	**Medium**	**Limit (including unit)**
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**
Particulate Matter, Sulphur dioxide and Oxides of nitrogen	Air	Assessment year	LCP TNP Limit	Define each LCP as per the TNP Note 1
		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	
		01/06/20-30/06/20		

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 SO2 and NOx 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	-	-

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**
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	-	Quarterly	-	-
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	Daily mean	Six monthly Against 1000 mg/m³ limit Method 11

Schedule 3(d) – Emissions and monitoring

Emissions from 1st 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^3	Hourly average	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^3	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_2 expressed as NO_2)		500 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
	Particulate matter		40 mg/m^3 Note 1	Daily mean	Continuous measurement	BS EN 14181
	Mercury		0.05 mg/m^3	Spot (taken over half hour)	Annual	BS EN 14385
A2	Particulate matter	Sinter plant (deduster stack)	30 mg/m^3	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.

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**
A54	DLCF (Door Leakage Control Factor)	Morfa coke oven batteries	Note 1	Note 1	Note 1	Note 1
	TLCF (Top Leakage Control Factor)		Note 1	Note 1	Note 1	Note 1
	PEF(Pushing Emission Factor)		Note 1	Note 1	Note 1	Note 1
	MEF (Mass Emission Factor)		Note 1	Note 1	Note 1	Note 1
A55	Visible smoke	Morfa main stack	Note 1	Note 1	Note 1	Note 1
	Sulphur dioxide		500 mg/m^3	Daily mean	Six monthly (minimum of 2 months between monitoring)	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		1600 mg/m^3 (lean) 4000 mg/m^3 (rich)	Hourly mean	Six monthly (minimum of 2 months between monitoring)	BS EN 14792
	Particulate matter		Note 2	Note 2	Note 2	Note 2
A56	Visible smoke	Minister stein (3 flues)	No visible releases	-	-	-
	Particulate matter		20 mg/m^3	Spot (half hourly)	Quarterly (minimum of 4 weeks between monitoring)	BS EN 13284-1
A57	Visible smoke	Ammonia incinerator	No visible releases	-	-	-
	Sulphur dioxide		2000 mg/m^3	Hourly average	Quarterly (minimum of 4 weeks between monitoring)	BS EN 14791

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**
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		200 mg/m^3	Hourly average	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: As agreed in response to IC3

Note 2: Only applies when the derogation for BATc 48 expires. Existing limit of 100 mg/m^3 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**
Blast furnace 4						
A4	-	Bell-less top	-	-	-	-
A4A	-	Bleeders	-	-	-	-
A6	Sulphur dioxide	Hot blast stove stacks	200 mg/m^3	Daily mean	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		100 mg/m^3	Daily mean	Quarterly	BS EN 14792
	Particulate matter		10 mg/m^3	Daily mean	Quarterly	BS EN 13284-1
A8A	Particulate matter	Casthouse fume extraction North	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181

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**
A8B	Particulate matter	Casthouse fume extraction South	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A65	Particulate matter	Ferrous stock house filter plant stack	10 mg/m^3	Hourly mean	Annual	BS EN 13284-1
Blast furnace 5						
A5	-	Bell-less top	-	-	-	-
A5A	-	Bleeders	-	-	-	-
A7	Sulphur dioxide	Hot blast stove stacks	200 mg/m^3	Daily mean	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		100 mg/m^3	Daily mean	Quarterly	BS EN 14792
	Particulate matter		10 mg/m^3	Daily mean	Quarterly	BS EN 13284-1
A9	Particulate matter	Casthouse fume extraction	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
Blast furnace associated emissions to air						
A35	Particulate matter	Coal injection “Process Plant Dryer Stack 1”	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1
A36	Particulate matter	Coal injection “Process Plant Dryer Stack 2”	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1
A37	Particulate matter	Fluidised bed dryer 1 bag filter plant stack	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1
A38	Particulate matter	Fluidised bed dryer 2 bag filter plant stack	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1
A39	Sulphur dioxide	Number 1 New Mill Stack (GCI)	260 mg/m^3	Hourly mean	6 monthly	BS EN 14791
	Oxides of nitrogen		115 mg/m^3			BS EN 14792
	Carbon monoxide		-			BS EN 15058
	Particulates		25 mg/m^3			BS EN 13284-1

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**
A42	Particulate matter	Silo 4 filter vent A	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1
A43	Particulate matter	Silo 4filter vent B	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1
A44	Particulate matter	Silo 5 filter vent	20 mg/m^3	Spot half hourly	Annually	BS EN 13284-1
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	-	-	-	-

Note 1: For quarterly monitoring there will be a minimum of 4 weeks between monitoring.

Table S3.4 Basic oxygen steelmaking and casting 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**
A10	Particulate matter	Iron desulphurisation/hot metal pouring fume extraction plant stack	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A10A	Particulate matter	Hot metal fume extraction number 2	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A11	Particulate matter	Lime plant dust extraction stack	50 mg/m^3	Spot (hourly)	Annually	BS EN 13284-1

Table S3.4 Basic oxygen steelmaking and casting 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**
A12	Particulate matter	BOS convertor 1 primary gas cleaning stack	115 mg/m^3	-	-	-
A13	Particulate matter	BOS convertor 2 primary gas cleaning stack	115 mg/m^3	-	-	-
A14	Particulate matter	Secondary fume extraction stack north	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A15	Particulate matter	Secondary fume extraction stack centre	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A16	Particulate matter	Secondary fume extraction stack south	15 mg/m^3	Daily mean	Continuous measurement	BS EN 14181
A17	-	RH degasser stack	-	-	-	-
A18	Particulate matter	RD-KTB degasser stack	25 mg/m^3	-	-	-
A63	Particulate matter	CAS-OB/Desulph fume extraction plant	15 mg/m^3	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		1400 mg/m^3	Hourly average	Quarterly	BS EN 14791

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**
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Reheat furnace duct north	1800 mg/m^3 Note 1. (Only if burning COG)	Hourly average	Quarterly	BS EN 14792
	Particulate matter		Only if burning COG	Spot (hourly)	Annually	BS EN 13284-1
A34B	Sulphur dioxide	Reheat furnace duct south	1400 mg/m^3	Hourly average	Quarterly	BS EN 14791
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		1800 mg/m^3 Note 1. (Only if burning COG)	Hourly average	Quarterly	BS EN 14792
	Particulate matter		Only if burning COG	Spot (hourly)	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 north	5 mg/m^3	Spot (hourly)	Quarterly	BS EN 1911
A22	Chlorides (as HCl)	Pickle line scrubber fume extraction south	5 mg/m^3	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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method**
A50	Sulphur dioxide	Service boilers 4 and 5 stack Note 2	300 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			330 mg/m^3	Daily mean		
			600 mg/m^3	Annual 95% hourly mean		
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		200 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			220 mg/m^3	Daily mean		
			400 mg/m^3	Annual 95% hourly mean		
	Particulate matter		15 mg/m^3	Monthly mean		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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method**
			16.5 mg/m^3	Daily mean	Continuous measurement	
			30 mg/m^3	Annual 95% hourly mean		
	Vanadium		-	Spot	Annual	BS EN 14385
	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) Note 2	ELV to be agreed on completion of IC6	Monthly mean	Continuous measurement	BS EN 14181
			ELV to be agreed on completion of IC6	Daily mean		
			ELV to be agreed on completion of IC6	Annual 95% hourly mean		
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		ELV to be agreed on completion of IC6	Monthly mean	Continuous measurement	BS EN 14181
			ELV to be agreed on completion of IC6	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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method**
			ELV to be agreed on completion of IC6	Annual 95% hourly mean		
	Particulate matter		ELV to be agreed on completion of IC6	Monthly mean	Continuous measurement	BS EN 14181
			ELV to be agreed on completion of IC6	Daily mean		
			ELV to be agreed on completion of IC6	Annual 95% hourly mean		
	Vanadium		-	Spot	Annual	BS EN 14385
	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)	300 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			330 mg/m^3	Daily mean		
			600 mg/m^3	Annual 95% hourly mean		
	Oxides of Nitrogen		200 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			220 mg/m^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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method**
	(NO and NO_2 expressed as NO_2)		400 mg/m^3	Annual 95% hourly mean		
	Particulate matter		15 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			16.5 mg/m^3	Daily mean		
			30 mg/m^3	Annual 95% hourly mean		
	Vanadium		-	Spot	Annual	BS EN 14385
	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
A52B	Sulphur dioxide	Boiler 7 (Margam C)	300 mg/m^3	Monthly mean	Continuous measurement BS EN 14181	
			330 mg/m^3	Daily mean		
			600 mg/m^3	Annual 95% hourly mean		
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		200 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			220 mg/m^3	Daily mean		
			400 mg/m^3	Annual 95% hourly mean		
	Particulate matter		15 mg/m^3	Monthly mean	Continuous measurement	BS EN 14181
			16.5 mg/m^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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method**
			30 mg/m^3	Annual 95% hourly mean		
	Vanadium		-	Spot	Annual	BS EN 14385
	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
A53	Sulphur dioxide	Mitchell boiler (Margam B) Note 2	ELV to be agreed on completion of IC6	Monthly mean	Continuous measurement	BS EN 14181
			ELV to be agreed on completion of IC6	Daily mean		
			ELV to be agreed on completion of IC6	Annual 95% hourly mean		
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		ELV to be agreed on completion of IC6	Monthly mean	Continuous measurement	BS EN 14181
			ELV to be agreed on completion of IC6	Daily mean		
			ELV to be agreed on completion of IC6	Annual 95% hourly 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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method**
	Particulate matter		ELV to be agreed on completion of IC6	Monthly mean	Continuous measurement	BS EN 14181
			ELV to be agreed on completion of IC6	Daily mean		
			ELV to be agreed on completion of IC6	Annual 95% hourly mean		
	Vanadium		-	Spot	Annual	BS EN 14385
	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
A62	Sulphur dioxide	Boiler 3	ELV to be agreed on completion of IC6	Monthly mean	Continuous measurement	BS EN 14181
			ELV to be agreed on completion of IC6	Daily mean		
			ELV to be agreed on completion of IC6	Annual 95% hourly 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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method**
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		ELV to be agreed on completion of IC6	Monthly mean	Continuous measurement	BS EN 14181
			ELV to be agreed on completion of IC6	Daily mean		
			ELV to be agreed on completion of IC6	Annual 95% hourly mean		
	Particulate matter		ELV to be agreed on completion of IC6	Monthly mean	Continuous measurement	BS EN 14181
			ELV to be agreed on completion of IC6	Daily mean		
			ELV to be agreed on completion of IC6	Annual 95% hourly mean		
	Vanadium		-	Spot	Annual	BS EN 14385
	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
A66	Sulphur dioxide		200 mg/m^3	Hourly average	Quarterly	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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method**
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	BOS OG heat recovery – super heater	Note 1	Hourly average	Quarterly	BS EN 14792
	Particulate matter		10 mg/m^3	Spot (hourly)	Quarterly	BS EN 13284-1
	Carbon monoxide		Note 1	Hourly average	Quarterly	BS EN 15058
A68	Sulphur dioxide	Boiler 8 Note 3 LCP 425 Boiler plant fired on blast furnace gas, basic oxygen steelmaking gas, coke oven gas and natural gas	35 - 400 mg/m^3 Note 4	Calendar monthly mean	Continuous	BS EN 14181
	Sulphur dioxide		38 - 440 mg/m^3 Note 4	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Sulphur Dioxide		70 - 800 mg/m^3 Note 4	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		100 mg/m^3	Calendar monthly mean	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		110 mg/m	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		200 mg/m^3	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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method**
	Carbon monoxide		100 mg/m^3	Calendar monthly mean	Continuous	BS EN 14181
	Carbon monoxide		110 mg/m^3	Daily mean validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide		200 mg/m^3	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Particulate matter		5 - 30 mg/m^3 Note 4	Calendar monthly mean	Continuous	BS EN 14181
	Particulate matter		5 - 33 mg/m^3 Note 4	Daily mean validated hourly averages	Continuous	BS EN 14181
	Particulate matter		10 - 60 mg/m^3 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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method**
	Stack gas homogeneity		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
	-		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A69	Sulphur dioxide	Boiler 9 Note 3 LCP 426 Boiler plant fired on blast furnace gas, basic oxygen steelmaking gas, coke oven gas and natural gas	35 - 400 mg/m^3 Note 4	Calendar monthly mean	Continuous	BS EN 14181
	Sulphur dioxide		38 - 440 mg/m^3 Note 4	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Sulphur Dioxide		70 - 800 mg/m^3 Note 4	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		100 mg/m^3	Calendar monthly mean	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		110 mg/m^3	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)		200 mg/m^3	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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method**
	Carbon monoxide		100 mg/m^3	Calendar monthly mean	Continuous	BS EN 14181
	Carbon monoxide		110 mg/m^3	Daily mean validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide		200 mg/m^3	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
	Particulate matter		5 - 30 mg/m^3 Note 4	Calendar monthly mean	Continuous	BS EN 14181
	Particulate matter		5 - 33 mg/m^3 Note 4	Daily mean validated hourly averages	Continuous	BS EN 14181
	Particulate matter		10 - 60 mg/m^3 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)**	**Ref. period**	**Monitoring frequency**	**Monitoring standard or method**
	Stack gas homogeneity		-	-	Pre-operational and when there is a significant change in operation	BS EN 15259
	-		-	-	-	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
- Note 1: Emission Limit Values to be proposed to NRW for agreement as part of IC 9.
- All limits are normalised to 3% O_2, dry conditions, 273K
- Note 2: After the respective dates given in response to IC11c), Service Boilers 4 and 5 (A50), Boiler 5 (Margam A) (A51) and Mitchell Boiler (Margam B) (A53) shall not be operated
- Note 3: Between the dates given in response to IC11b) and IC11c), Boilers 8 (A68) and 9 (A69) shall not be operated concurrently
- 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.

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**
W1	Suspended Solids	Long sea outfall	20 mg/l above W9	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:
	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^3/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

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**
	Oil and grease		20 mg/l	24 hour average from beginning of discharge	Weekly	Visual
	Flow		-	-	-	-
	Temperature		-	-	-	-
W4	Suspended Solids	Iron Ore Stockyard into Afan Estuary	-	-	-	-
	Oil and grease		-	-	-	-
	Flow		-	-	-	-
	Temperature		-	-	-	-
W5	Suspended Solids	Cooling Water discharge into Port Talbot Dock	20 mg/l Note 1	24 hour composite sample / qualified random sample	Background daily Discharge monthly	BS EN 872
	Oil and grease		-	-	-	-
	Flow		16,000 m^3/hr 350,000 m^3/day	24 hour period beginning 00.01	Continuous	Flow meter
	Temperature		36°C	Maximum	Continuous	Standard thermocouple
W6	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	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
	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	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
	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
W9	Suspended Solids	Background concentration	mg/l	24 hour composite sample	-	BS EN 872

Note 1: Shall not exceed the background concentration by the figure indicated
Note 2: The operator shall only apply the limits set for W1, W6, W7 and W8 when the limits at W9 have not been applied.

Table S3.9A Annual limits		
Substance	**Medium**	**Limit (including unit)**
Particulate matter (Until 2015)	Air	LCP NERP Limit A50 (LCP 337), A51 (LCP 339), A52A/A52B (LCP 340) and A53 (LCP 338) to be reported individually
Sulphur dioxide (Until 2015)	Air	LCP NERP Limit A50 (LCP 337), A51 (LCP 339), A52A/A52B (LCP 340) and A53 (LCP 338) to be reported individually
Oxides of nitrogen (Until 2015)	Air	LCP NERP Limit A50 (LCP 337), A51 (LCP 339), A52A/A52B (LCP 340) and A53 (LCP 338) to be reported individually
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 S3.9B Annual limits (Excluding start up and shut down except where otherwise stated).				
Substance	**Medium**	**Limit (including unit)**		**Emission Points**
Particulate Matter, Sulphur dioxide and Oxides of nitrogen	Air	Assessment year	LCP TNP Limit	Define each LCP as per the TNP Note 1
		01/01/16 and subsequent years until 31/12/19 01/06/20-30/06/20	Emission allowance figure shown in the TNP Register as at 30 April the following year	

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_2 and NO_x mass	-	Quarterly	-	-

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**
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	-	-
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	-	-

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**
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	-	Quarterly	-	-
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	Six monthly	Against 1000 mg/m^3 limit	Daily mean 1000 mg/m^3	US EPA Method 11

Schedule 4 - Reporting

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

Table S4.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1.	Sinter Plant - A1, A2 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, A22	Every 12 months	1 January
	Energy generation – A50, A51, A52A, A52B, A53, A62 Note 1 A68 and A69 Note 2	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)

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

Table S4.3 Chapter III Performance parameters for reporting to DEFRA and other Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Water usage (potable only)	Annually	tonnes
Natural Gas usage	Annually	MJ
Energy efficiency	Annually	To be agreed with NRW
Total effluent discharge	Annually	m^3
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_x for each LCP	Annually	t
Total Emissions to Air of SO_2 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 & Energy	Form IED AR1 - SO_2, NO_x and dust mass emission and energy	01/01/16	National	31/12/15
Air	Form IED RTA1 – TNP quarterly emissions summary log	01/01/16	National	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

Table S4.4 Reporting forms				
Media/ parameter	**Reporting format**	**Starting Point**	**NRW recipient**	**Date of form**
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 AAE1 – Energy Usage Summary and LCP Emissions to Air other or other form as agreed in writing by Natural Resources Wales	XX/XX/15		XX/XX/15
Air	Form Air – 8 PPC discontinuous monitoring for SO_2, NO_x, PM and load or other form as agreed in writing by Natural Resources Wales	XX/XX/15		XX/XX/15
Air	TO1N – LCP allocation in the TNP	XX/XX/15		XX/XX/15
Air	TO2N – Company allocation in the TNP	XX/XX/15		XX/XX/15
Water and Land	Form water 1 or other form as agreed in writing by Natural Resources Wales	20/04/15		20/04/15
Water usage	Form water usage 1 or other form as agreed in writing by Natural Resources Wales	20/04/15		20/04/15
Energy usage	Form energy 1 or other form as agreed in writing by Natural Resources Wales	20/04/15		20/04/15
Other performance indicators	Form performance 1 or other form as agreed in writing by Natural Resources Wales	20/04/15		20/04/15

Schedule 5 - Notification

These pages outline the information that the operator must provide.

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

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

Part A

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

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

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

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

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

Part B - to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

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	

(a) Notification requirements for any malfunction and breakdown of abatement equipment as defined by the Industrial Emission Directive*.	
To be notified within 48 hours of abatement equipment malfunction and breakdown	
Time at which malfunction or breakdown commenced	
Time at which malfunction or breakdown ceased	
Duration of the breakdown event in hours and minutes	
Reasons for malfunction or breakdown	
Where the abatement plant has failed, give the hourly average concentration of all measured pollutants.	
Cumulative breakdown operation in current year (at end of present event)	
Cumulative malfunction operation in current year (at end of present event)	
Name**	
Post	
Signature **	
Date	

* See section 3.6 and Appendix E of ESI Compliance Protocol for guidance
** authorised to sign on behalf of the operator

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.

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

"Combustion Technical Guidance Note" means IPPC Sector Guidance Note Combustion Activities, version 2.03 dated 27th July 2005 published by Environment Agency.

"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.

"*dynamic emission limit value*" (DELV) means an emission limit that varies in accordance with Article 40 of the Industrial Emissions Directive.

"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.

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

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

"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.

"large combustion plant" or "*LCP*" is a combustion plant or group of combustion plants discharging waste gases through a common windshield 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 sibgly, 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 Natural Resources Wales in accordance with regulation xx of the xxxx (Transitional National Plan) Regulations xxx.

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

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

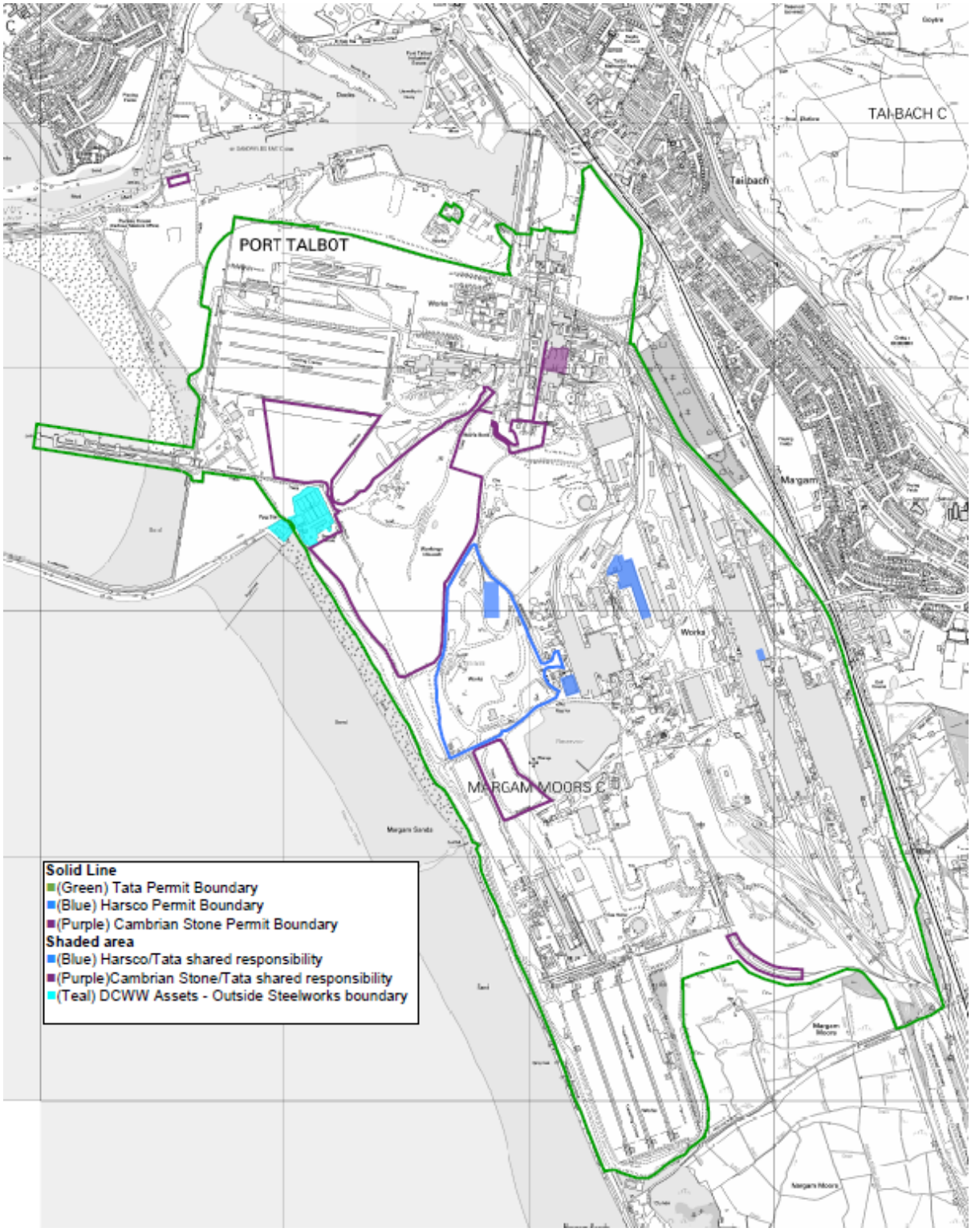
"year" means calendar year ending 31 December.

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 underfiriing 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 no 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 31st December 2007
(d) *"CEN"* means Commité 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) *"combustion technical guidance note"* means IPPC Sector guidance Note Combustion Activities, version 2.03 dated 27th July 2005 published by The Environment Agency.
(g) *"operational hours"* of an LCP is the time spent between start up and shut down of the LCP.

Schedule 7 - Site plan



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

Operating techniques

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.

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.

We have considered the operators justification for departure from the guidance and accept it in the following respects and for the following reasons;

1) The age of existing plant, meaning that retrofitted pollution abatement equipment would have a more limited operational life, significantly increasing costs
2) The installation of coke oven gas de-sulphurisation lies outside the normal investment cycle for the plant.
3) The current emission limit values will be maintained throughout the period of the derogation. The current emission limit values have been set to be protective of the environment and not result in significant pollution. No significant pollution will occur as a result of the derogation.
4) NRW has assessed the costs and benefits of closing the coke oven at Port Talbot in March 2016 and rebuilding it against the costs and benefits of a retrofitting scenario in 2018, utilising a derogation for the two year period.
5) NRW have assessed the costs and benefits in of a time limited derogation for BAT 26 utilising a derogation of 6 months.

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 the technical characteristics of the installation concerned.

BAT conclusion	Associated BAT-AEL	Derogation until	ELV during derogation period
26	30 mg/m^3 for dust	October 2016	50 mg/m^3
48	1000mg/m^3 for hydrogen sulphide (this is not an AEL)	March 2018	No ELV
49	500 mg/m^3 for sulphur dioxide	March 2018	250 mg/m^3 (lean) 1000 mg/m^3 (rich)
	20 mg/m^3 for dust	March 2018	100 mg/m^3