

Review of an Environmental Permit under the Environmental Permitting (England & Wales) Regulations 2010 (as amended)

Decision document recording our decision-making process following review of a permit

The Permit number is: EPR/XP3030FC

The Operator is: Tata Steel UK Limited

The Installation is Rotherham Aldwarke Site, Rotherham, S65 3SR

This Variation Notice number is: EPR/XP3030FC/V003

Issued: 03/09/2015

What this document is about

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication of updated decisions on BAT conclusions.

We have reviewed the permit for this installation against the revised BAT Conclusions for the iron and steel production industry sector published on 8th March 2012 and other relevant BAT Conclusions published prior to this date. This is our decision document, which explains the reasoning for the consolidated variation notice that we are issuing.

It explains how we have reviewed and considered the techniques used by the Operator in the operation and control of the plant and activities of the installation. This review has been undertaken with reference to the decision made by the European Commission establishing best available techniques (BAT) conclusions ('BAT Conclusions') for Iron and Steel Production as detailed in document reference 2012/135/EU. It is our record of our decision-making process and shows how we have taken into account all relevant factors in reaching our position. It also provides a justification for the inclusion of any specific conditions in the permit that are in addition to those included in our generic permit template.

As well as considering the review of the operating techniques used by the Operator for the operation of the plant and activities of the installation, the consolidated variation notice takes into account and brings together in a single document all previous variations that relate to the original permit issue. It also modernises the entire permit to reflect the conditions contained in our current generic permit template.

The introduction of new template conditions makes the Permit consistent with our current general approach and philosophy and with other permits issued to

installations in this sector. Although the wording of some conditions has changed, while others have disappeared because of the new regulatory approach, it does not reduce the level of environmental protection achieved by the Permit in any way. In this document we therefore address only our determination of substantive issues relating to the new BAT Conclusions.

We try to explain our decision as accurately, comprehensively and plainly as possible. Achieving all three objectives is not always easy, and we would welcome any feedback as to how we might improve our decision documents in future.

How this document is structured

1. Our proposed decision
2. How we reached our decision
3. The legal framework
4. Annex 1- Review of operating techniques within the Installation against BAT Conclusions

1 Our decision

We have decided to issue the Variation Notice to the Operator. This will allow it to continue to operate the Installation, subject to the conditions in the Consolidated Variation Notice.

We consider that, in reaching that decision, we have taken into account all relevant considerations and legal requirements and that the varied permit will ensure that a high level of protection is provided for the environment and human health.

The Consolidated Variation Notice contains many conditions taken from our standard Environmental Permit template including the relevant Annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the Notice, we have considered the techniques identified by the operator for the operation of their installation, and have accepted that the details are sufficient and satisfactory to make those standard conditions appropriate. This document does, however, provide an explanation of our use of “tailor-made” or installation-specific conditions, or where our Permit template provides two or more options.

2 How we reached our decision

2.1 Requesting information to demonstrate compliance with BAT Conclusion techniques

We issued a Notice under Regulation 60(1) of the Environmental Permitting (England and Wales) Regulations 2010 (a Regulation 60 Notice) on 13/09/2013 requiring the Operator to provide information to demonstrate how the operation of their installation currently meets, or will subsequently meet, the revised standards described in the relevant BAT Conclusions document.

The Notice also required that where the revised standards are not currently met, the operator should provide information that

- Describes the techniques that will be implemented before 08/03/2016 which will then ensure that operations meet the revised standard, or
- justifies why standards will not be met by 08/03/2016, and confirmation of the date when the operation of those processes will cease within the installation or an explanation of why the revised BAT standard is not applicable to those processes, or
- justifies why an alternative technique will achieve the same level of environmental protection equivalent to the revised standard described in the BAT Conclusions.

Where the Operator proposed that they were not intending to meet a BAT standard that also included a BAT Associated Emission Level (BAT AEL) described in the BAT Conclusions Document, the Regulation 60 Notice requested that the Operator make a formal request for derogation from compliance with that AEL (as provisioned by Article 15(4) of IED). In this circumstance, the Notice identified that any such

request for derogation must be supported and justified by sufficient technical and commercial information that would enable us to determine acceptability of the derogation request.

The Regulation 60 Notice response from the Operator was received on 30/04/2014.

We considered it was in the correct form and contained sufficient information for us to begin our determination of the permit review

The Operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 60 Notice response that appears to be confidential in relation to any party.

2.2 Review of our own information in respect to the capability of the installation to meet revised standards included in the BAT Conclusions document

Based on our records and previous regulatory activities with the facility we have no reason to consider that the operator will not be able to comply with the techniques and standards described in the BAT Conclusions.

2.3 Addition of newly prescribed activities

When the Industrial Emissions Directive was introduced into the regulatory framework in England, via amendment to the Environmental Permitting Regulations in 2012, the description of activities defined as installations changed to include for the first time some activities that take place at this facility. These activities have taken place at this facility for many years and have been regulated through this permit principally as activities directly associated to the primary activity of making and refining steel.

The revisions to the descriptions of Installations now means that the treatment of ashes and slags and the shredding of metals are listed scheduled activities in their own right and need to be included in the permit as such.

The Operator needed to apply to include these activities in their permit. An administrative variation application was therefore submitted in April 2015 seeking the inclusion of these new activities. The application was publicised in accordance with our Public Participation Statement. No comments were received from members of the public or other interested parties.

We consider that that application was in the correct form and contained sufficient information for us to determine whether those activities could be included in the permit as part of the review process

We believe the operator has taken steps to prevent pollution of the environment or harm to human health from these particular activities, we consider the best available techniques are being used to manage these waste streams and the activities can be included in the permit as requested.

3 The legal framework

The Consolidated Variation Notice will be issued, under Regulation 20 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the IED;
- subject to aspects of other relevant legislation which also have to be addressed.

We consider that, in issuing the Consolidated Variation Notice, it will ensure that the operation of the Installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

Annex 1: decision checklist regarding relevant BAT Conclusions

BAT Conclusions for the Production of Iron Steel, were published by the European Commission on 8th March 2012. There are 95 BAT Conclusions. This annex provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This annex should be read in conjunction with the Consolidated Variation Notice.

BAT Conclusion No	Summary of BAT Conclusion requirement	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
General BAT		
1	BAT is to implement and adhere to an environmental management system (EMS)	<p>Environmental Management System (EMS) has been in place since 2005 which meets the requirements of ISO14001:2004 and covers all of the elements and sub-elements (I-IX) outlined in BAT 1. Benchmarking is undertaken both internally across the site and with other electric arc furnaces.</p> <p>BAT is achieved.</p>
2	BAT is to reduce thermal energy consumption by using a combination of techniques.	<p>Noted that the BAT conclusion document refers certain techniques being important for integrated steelworks in order to improve the overall energy efficiency and we accept that the use of steam boilers for reheating furnaces, combined heat and power and the use of 'modern, gravimetric solid fuel feed systems' is not relevant.</p> <p>No district heating system nearby. There are no automated controls on the VOD or LF.</p> <p>Tata Rotherham has an energy manager and team responsible for minimising energy consumption across the site. Energy audits are a key tool in identifying improvement opportunities. Major processes are controlled by means of computer-based systems to ensure safe operation and to achieve the most efficient use of Energy.</p> <p>All the reheating furnaces on the site are fired with Natural Gas and include an unfired recuperation zone to preheat the stock using the furnace exhaust gases before the gases pass to recuperators for further heat recovery by preheating the combustion air.</p> <p>Steam and hot water pipes are lagged to minimise energy losses</p> <p>BAT is achieved</p> <p>We have included condition 1.2.1(b) to review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities</p>

BAT Conclusion No	Summary of BAT Conclusion requirement	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
3	<p>BAT is to reduce primary energy consumption by optimisation of energy flows and optimised utilisation of the extracted process gases such as coke oven gas, blast furnace gas and basic oxygen gas.</p> <p>Process integrated techniques to improve energy efficiency in an integrated steelworks by optimising process gas utilisation.</p>	<p>BAT conclusion 3 is not applicable as the site does not have any coke oven gas, blast furnace gas or basic oxygen gas.</p>
4	<p>BAT is to use desulphurised and dedusted surplus coke oven gas and dedusted blast furnace gas and basic oxygen gas (mixed or separate) in boilers or in combined heat and power plants to generate steam, electricity and/or heat using surplus waste heat for internal or external heating networks, if there is a demand from a third party.</p>	<p>BAT conclusion 4 is not applicable as it relates to an integrated steel works and the site does not produce coke oven gas, blast furnace gas or basic oxygen gas.</p>
5	<p>BAT is to minimise electrical energy consumption by using one or a combination of the following techniques:</p> <p>I. power management systems</p> <p>II. grinding, pumping, ventilation and conveying equipment and other electricity-based equipment with high energy efficiency.</p>	<p>As described above in BAT2 BAT I – there is a dedicated management team that is reviewing power management on site.</p> <p>BAT II. Major investment of £5m in 2012 in variable speed drives and energy efficiency.</p> <p>As improvements can always be made we have included condition 1.2.1(b) which requires energy recovery to be reviewed every 4 years. The Operator is required to report energy usage and energy generated under condition 4.2 of Schedule 4.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
6	<p>BAT is to optimise the management and control of internal material flows in order to prevent pollution, prevent deterioration, provide adequate input quality, allow reuse and recycling and to improve the process efficiency and optimisation of the metal yield.</p>	<p>Material flows are optimised to prevent deterioration, provide adequate input quality, and allow reuse and recycling and to improve the process efficiency and optimisation of the metal yield as a matter of course.</p> <p>The small fractions of residues that have no economic use are disposed of either at an internal landfill site or externally. In all cases appropriate measures are taken to ensure that such disposals are properly controlled, for example through the use of waste transfer notes.</p> <p>See BAT 7, 8, 9, & 11.</p> <p>Bat 6 is achieved.</p>
7	<p>BAT is to select appropriate scrap qualities and other raw materials. scrap sorting to minimise the risk of including hazardous or non-ferrous contaminants, particularly polychlorinated biphenyls (PCB) and oil or grease.</p>	<p>Operate to Scrap Protocol for both internal and external purchase of scrap includes specification on cleanliness and chemistry, along with criteria for the removal of mercury-containing WEEE & End-of-Life Vehicles. Radioactivity monitors are located on the scrap receipt weighbridges</p> <p>The Aldwarke Melting Shop (AMS) utilizes a computer-based management system called AMS Admin to ensure correct scrap composition and grades according to the hot metal quality and end steel grade quality criteria.</p> <p>Bat 7 is achieved</p>

BAT Conclusion No	Summary of BAT Conclusion requirement	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
8	<p>BAT for solid residues is to use integrated techniques and operational techniques for waste minimisation by internal use or by application of specialised recycling processes (internally or externally).</p>	<p>Most internally arising solid materials in such as iron-bearing materials - or reverts are reused in the EAF, where their „value in use“ can be realised. EAF slag is a by-product and is not discussed in this section; it is covered by the slag protocol.</p> <p>Sludges and filter cakes from processed through the Hazardous Waste treatment facility for external re-use or disposal.</p> <p>The ferrous dust from Primary EAF contains Zinc and the dust from secondary steelmaking contains lead. The Zinc containing dust is sent for TFS into zinc recovery kilns, the lead containing dust is currently disposed of through external waste companies</p> <p>Mill scale is screened and sold to the cement or suppliers of dolofrit, drop out box dust (heavy fraction dust from EAF extraction) which is bagged and re-charged to the EAF if quality of steels being processed allows, and mill sludges (which are sent to the Hazardous waste treatment plant for recycling or disposal by off-site waste companies).</p> <p>Bat 8 is achieved</p>
9	<p>BAT is to maximise external use or recycling for solid residues which cannot be used or recycled according to BAT 8, wherever this is possible and in line with waste regulations. BAT is to manage in a controlled manner residues which can neither be avoided nor recycled.</p>	<p>See 8 above some small fractions of residues that have no economic use are disposed of either at an internal landfill site or externally.</p> <p>Bat 9 is achieved</p>
10	<p>BAT is to use the best operational and maintenance practices for the collection, handling, storage and transport of all solid residues and for the hooding of transfer points to avoid emissions to air and water.</p>	<p>All materials that could cause air or water emission issues (bag plant dusts) are collected directly in UN approved double skinned and sealed Fabric Intermediate Bulk Containers (FIBC) and are stored on concrete and are tested for radioactivity prior to shipment for recycling or disposal.</p> <p>BAT 10 is achieved</p>

BAT Conclusion No	Summary of BAT Conclusion requirement	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
11	BAT is to prevent or reduce diffuse dust emissions from materials storage, handling and transport	<p>A fugitive dust management strategy under the EMS. No raw materials are stored outside.</p> <p>Maintenance routines and procedures are set out through a computer-based SAP maintenance management module and assessed through an asset maintenance framework (CAMF). All routine maintenance plans are automatically generated and assigned for each department and carried out by suitably trained personnel. Additional checks and controls are carried out at the operations level continually to identify and resolve emergency issues.</p> <p>Road sweeper and water bowsers are deployed when needed</p> <p>A TOPAS PM10 air monitoring network is in operation. The annual reports from this network demonstrate that the Rotherham site has an insignificant impact on off-site air quality.</p> <p>The EAF scrap stock yard is 10ha, a natural clay-lined area. The scrap inspection and tipping areas are concrete. The drainage from the area is monitored on a weekly basis and does not show any long term issues in water discharge quality. The surface layer of the scrap storage areas are de-metalled on a periodic basis.</p> <p>Bat 11 is achieved</p>
12	BAT for waste water management is to prevent, collect and separate waste water types, maximising internal recycling and using an adequate treatment for each final flow.	<p>The abstraction limits from the River Don mean the site is already highly efficient in terms of water use, utilising closed-loop systems in preference to once-through systems wherever possible, and maximising the reuse of process waters where practicable, taking into account water quality and the distance between different processes.</p> <p>BAT is achieved</p>

BAT Conclusion No	Summary of BAT Conclusion requirement	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
13	<p>BAT is to measure or assess all relevant parameters necessary to steer the processes from control rooms by means of modern computer-based systems in order to adjust continuously and to optimise the processes online, to ensure stable and smooth processing, thus increasing energy efficiency and maximising the yield and improving maintenance practices.</p>	<p>All major processes are controlled by means of computer-based systems to ensure safe operation and to achieve the most efficient overall steel production.</p> <p>BAT is achieved</p>
14	<p>BAT is to measure the stack emissions of pollutants from the main emission sources from all processes included in the Sections 1.2 – 1.7 whenever BAT-AELs are given and in process gas-fired power plants in iron and steel works.</p> <p>BAT is to use continuous measurements at least for:</p> <ul style="list-style-type: none"> • emissions of nitrogen oxides (NO_x) from power plants • dust emissions from large electric arc furnaces. <p>For other emissions, BAT is to consider using continuous emission monitoring depending on the mass flow and emission characteristics.</p>	<p>This is not an integrated steel works, no requirement for continuous measurements of emissions of nitrogen oxides (NOX) from power plants.</p> <p>The current permit already requires continuous dust emissions monitoring of the electric arc furnace, emission point RA101</p> <p>Continuous dust monitoring is also undertaken on the exhausts of the RA21 New Lead Bag Filter & RA22 Old Lead Bag Filter Plant</p> <p>See table S3.1 of the permit for further details.</p> <p>Bat is achieved</p>
15	<p>For relevant emission sources not mentioned in BAT 14, BAT is to measure the emissions of pollutants from all processes included in the Sections 1.2 – 1.7 and from process gas-fired power plants within iron and steel works as well as all relevant process gas components/pollutants periodically and discontinuously. This includes the discontinuous monitoring of process gases, stack emissions, polychlorinated dibenzodioxins/furans (PCDD/F) and monitoring the discharge of waste water, but excludes diffuse emissions</p>	<p>The permit already specifies self-monitoring programme for air and waste water emissions. See Tables S3.1 Emission to Air & S3.2 Emissions to Water of the permit. These are in line with BAT.</p>

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16	<p>BAT is to determine the order of magnitude of diffuse emissions from relevant sources by the methods</p> <ul style="list-style-type: none"> • Direct measurement methods where the emissions are measured at the source itself. • Indirect measurement methods where the emission determination takes place at a certain distance from the source; • Calculation with emission factors. 	<p>The estimation of diffuse dust emissions from the Rotherham site is an ongoing area of work.</p> <p>Direct emission measurements have been undertaken of fugitive releases from roof vents on the EAF plant where such emissions have been found to be variable, noted that sampling was not representative.</p> <p>Cross ref to BAT 11.</p>
17	<p>BAT is to prevent pollution upon decommissioning</p>	<p>A decommissioning plan is in place as part of the site condition report and meets site condition reports and baseline reporting under IED– guidance and templates (H5) and BAT guidance. All new equipment is designed with BAT.</p> <p>BAT achieved</p>
18	<p>BAT is to reduce noise emissions from relevant sources in the iron and steel manufacturing processes</p>	<p>An approved noise management plan is in place.</p> <p>Noise from process operations is largely controlled by enclosure within buildings.</p> <p>Annual boundary noise surveys are undertaken and action taken where required.</p> <p>Tata Steel has a “Buy Quiet” policy since 1980 (Corporate standard BES 5 – “Limiting noise from plant and equipment”) to ensure that noise levels are taken into consideration whenever buying new equipment.</p> <p>There have been no Noise Incidents or Complaints for the Rotherham Site I&S operations since May 2007.</p> <p>BAT is achieved</p>
<p>BAT Conclusions for Sinter Plant</p>		

BAT Conclusion No	Summary of BAT Conclusion requirement	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
BAT conclusions 19 to 32 inclusive	This is not an integrated steel works. There is no sinter plant at the installation. Therefore, BAT Conclusions 19 to 32 inclusive are not relevant for this installation.	BATC 19 to 32 not relevant.
BAT Conclusions for Pelletisation Plants		
BAT Conclusions 33 to 41 inclusive	There are no Pelletisation plants in the U.K. Therefore, BAT Conclusions 33 to 41 inclusive are not relevant for this installation.	BATC 33 to 41 not relevant
BAT Conclusion for Coke Oven Plants		
BAT Conclusions 42-58 inclusive	There are no coke oven plants at the installation. Therefore, BAT Conclusions 42-58 inclusive are not relevant for this installation	BATC 42 to 58 not relevant
BAT Conclusions for Blast Furnaces		
BAT Conclusions 59-74 inclusive	This is not an integrated steel works. There are blast furnaces at the installation. Therefore, BAT Conclusions 59-74 inclusive are not relevant for this installation	BATC 59 to 74 not relevant
BAT Conclusions for Basic Oxygen Steelmaking and Casting		
BAT Conclusions 75-86 inclusive	This not integrated steel works. No Basic Oxygen Steelmaking and Casting is undertaken at the installation. Therefore, BAT Conclusions 75-86 inclusive are not relevant for this installation	BATC 75 to 86 not relevant
BAT Conclusions for Electric Arc Furnace Steelmaking and Casting		

BAT Conclusion No	Summary of BAT Conclusion requirement	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
87	<p>BAT for the electric arc furnace (EAF) process is to prevent mercury emissions by avoiding, as much as possible, raw materials and auxiliaries which contain mercury (see BAT 6 and 7)</p>	<p>As described in BAT 6 & 7 above raw materials and auxiliaries' selection without mercury.</p> <p>BAT is achieved.</p>
88	<p>BAT for the electric arc furnace (EAF) primary and secondary dedusting (including scrap preheating, charging, melting, tapping, ladle furnace and secondary metallurgy) is to achieve an efficient extraction of all emission sources by using one of the techniques listed below and to use subsequent dedusting by means of a bag filter:</p> <p>I. a combination of direct off-gas extraction (4th or 2nd hole) and hood systems</p> <p>II. direct gas extraction and doghouse systems</p> <p>III. direct gas extraction and total building evacuation (low-capacity electric arc furnaces (EAF) may not require direct gas extraction to achieve the same extraction efficiency).</p> <p>The overall average collection efficiency associated with BAT is > 98 %.</p> <p>The BAT-associated emission level for dust is < 5 mg/Nm³, determined as a daily mean value.</p> <p>The BAT-associated emission level for mercury is < 0.05 mg/Nm³, determined as the average over the sampling period (discontinuous measurement, spot samples for at least four hours).</p>	<p>In line with Bat the following techniques are used for primary and secondary dedusting:</p> <p>The Primary EAFs and ladle Furnace 3 in the Aldwarke Melting Shop Building (known as AMS) have a combination of direct off-gas extraction and hood systems. Ladle Furnace 1 & 2 in the Aldwarke Bloom Caster Building (known as ABC) has direct off-gas extraction which provides efficient fume capture. VAC and VOD processes are also in each building and have direct extraction.</p> <p>The AMS Extraction system achieves 99.6% fume extraction</p> <p>Review of the continuous monitoring results of dust emissions from EAF bag plant confirms that there have been no instances of the emissions above 5mg/m³ as a daily mean average and the BAT-AEL is already met. The limit in the permit has been tightened to 5 mg/m³ in line with BAT.</p> <p>Whilst there is no limit set in the permit - review of the periodic monitoring results of mercury emissions are shown to be below the BAT AEL of <0.05mg/m³. WE have now included a limit in the permit and set annual monitoring in line with BAT.</p> <p>BAT AEL is achieved.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
89	<p>BAT for the electric arc furnace (EAF) primary and secondary dedusting (including scrap preheating, charging, melting, tapping, ladle furnace and secondary metallurgy) is to prevent and reduce polychlorinated dibenzodioxins/furans (PCDD/F) and polychlorinated biphenyls (PCB) emissions by avoiding, as much as possible, raw materials which contain PCDD/F and PCB or their precursors (see BAT 6 and 7) and using one or a combination of the following techniques, in conjunction with an:</p> <ol style="list-style-type: none"> I. appropriate dust removal system: appropriate post-combustion II. appropriate rapid quenching III. injection of adequate adsorption agents into the duct before dedusting. <p>The BAT-associated emission level for polychlorinated dibenzodioxins/furans (PCDD/F) is < 0.1 ng I-TEQ/Nm³, based on a 6 – 8 hour random sample during steady-state conditions. In some cases, the BAT-associated emission level can be achieved with primary measures only.</p>	<p>As discussed in BAT 6 & 7 above the selection of raw materials minimises dioxins. In addition BAT I & II is undertaken</p> <p>The annual spot sample test for polychlorinated dibenzodioxins/ furans (PCDD/F) is 0.0001 to 0.0077 ng I-TEQ/m³ which is well under BAT AEL <0.1ng ITEQ/m³.</p> <p>The limit in the permit has been reduced to 0.1 1ng ITEQ/m³ in line with BAT. Table S3.1.</p> <p>PCB Measurement is not a requirement of the Environmental Permit, Historic measurements show: 0.0127 ng/m³</p> <p>BAT is achieved</p>

BAT Conclusion No	Summary of BAT Conclusion requirement	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
90	<p>BAT for on-site slag processing is to reduce dust emissions by using one or a combination of the following techniques:</p> <ul style="list-style-type: none"> I. efficient extraction of the slag crusher and screening devices with subsequent off-gas cleaning, if relevant II. transport of untreated slag by shovel loaders III. extraction or wetting of conveyor transfer points for broken material IV. wetting of slag storage heaps V. use of water fogs when broken slag is loaded. <p>In the case of using BAT I, the BAT-associated emission level for dust is < 10 – 20 mg/Nm³, determined as the average over the sampling period (discontinuous measurement, spot samples for at least half an hour).</p>	<p>The activity is undertaken by Harsco Ltd.</p> <p>BAT is not relevant</p>
91	<p>BAT is to minimise the water consumption from the electric arc furnace (EAF) process by the use of closed loop water cooling systems for the cooling of furnace devices as much as possible unless once-through cooling systems are used.</p>	<p>All cooling systems use closed loop systems with cooling towers either evaporative or closed. These systems bleed water to control the water chemistry in accordance with control of legionella or appropriate corrosion prevention. All discharges are processed through the RWA2 water treatment plant.</p> <p>BAT is achieved.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
92	<p>BAT is to minimise the waste water discharge from continuous casting by using the following techniques in combination:</p> <p>I. the removal of solids by flocculation, sedimentation and/or filtration</p> <p>II. the removal of oil in skimming tanks or in any other effective device</p> <p>III. the recirculation of cooling water and water from vacuum generation as much as possible.</p> <p>The BAT-associated emission levels, for waste water from continuous casting machines, based on a qualified random sample or a 24-hour composite sample, are:</p> <ul style="list-style-type: none"> — suspended solids < 20 mg/l — iron < 5 mg/l — zinc < 2 mg/l — nickel < 0.5 mg/l — total chromium < 0.5 mg/l — total hydrocarbons < 5 mg/l 	<p>All discharges from Continuous Casting & VOD/VAC are discharged through primary water treatment plants. The discharges from these Water Treatment plants also go through a Secondary WTP at RWA2 (Aldwarke 2) discharge to River.</p> <p>These systems:</p> <p>I. Remove solids</p> <p>II. Remove Oil</p> <p>III. Recirculation of cooling water.</p> <p>The current ELVs in the permit, emission point RAW2 (Table S3.2) are the same or better than the BAT-AEL except Suspended Solids where the current limit is 40mg/l. The current zinc limit is 0.5 mg/l and this has been retained.</p> <p>We have reduced the limit for suspended solids to 20mg/l in line with BAT, the limit shall apply from 8th March 2016</p> <p>BAT 92 is achieved</p>
93	<p>This relates to production residues and specifically states that BAT is to prevent waste generation. It also makes reference to a number of techniques and BAT is to manage in a controlled manner EAF process residues which can neither be avoided nor recycled.</p>	<p>See also BAT 8 above.</p> <p>Operate a waste hierarchy management plant that is in line with BAT subsections I-V.</p> <p>Bat 93 is achieved</p>
94	<p>BAT is to reduce energy consumption by using continuous near net shape strip casting, if the quality and the product mix of the produced steel grades justify it.</p>	<p>Continuous near net shape strip casting is not undertaken product mix does not allow this to take place. TSS produces Small Bloom, Large Bloom and Ingots (various sizes).</p> <p>BAT 94 is not applicable.</p>

BAT Conclusion No	Summary of BAT Conclusion requirement	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
95	BAT is to reduce noise emissions from electric arc furnace (EAF) installations and processes generating high sound energies by using a combination of the following constructional and operational techniques depending on and according to local conditions (in addition to using the techniques listed in BAT 18):	<p>As described above in BAT18 – the site has an approved noise management plan.</p> <p>The AMS building meets the BAT subsections I-V</p> <ul style="list-style-type: none"> I. Steel framed building with sheeting as described above. II. The mechanical shocks from the charging cranes do not produce significant noise issues. III. See I. roof panels that have some acoustic noise reduction. IV. The furnace is on its own structure within the building however it is not separated from the building structure. V. The EAFs and VOD/VACs are housed in buildings. <p>BAT 95 is achieved</p>

Where relevant and appropriate, we have incorporated the techniques described by the Operator in their Regulation 60 Notice response as specific operating techniques required by the permit, through their inclusion in Table S1.2 of the Consolidated Variation Notice.